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HAPLOPAPPUS BAYLAHUEN—C. GAY.*

[*Hysterionica Baylahuen* (Gay) Baillon.]

BY HARRY KAHN, PHAR. M.

This plant, which is indigenous to Chili, has until recently been little known to science. The February 28, 1889, issue of the *Bulletin Général de Thérapeutique*, p. 160, contains a paper by DR. G. BAILLÉ, and in the *Druggists' Bulletin*, 4, 39, may be found a paper, with an illustration, by DR. H. RUSBY.

GAY'S description of the plant under consideration, as translated by RUSBY, is as follows: Stem woody, cylindrical, ramose, glutinous and lightly sulcate, the same as the branches, which are elongated, and very glabrous, nearly naked in the upper part, all terminated by a single head. Leaves coriaceous, thick, with a base persistent upon the stem, much crowded below the branches, obovate spatulate, nearly cuneiform, narrowed at the base, half clasping, slightly wavy above the middle; they are bordered by thick teeth, glutinous, very glabrous on both faces, an inch long at the most and 4 to 6 lines wide. Involucre campanulate, formed of some four rows of scales, the exterior of which are foliaceous, ovate dentate, the interior lance-linear, acuminate, entire, scariose, slightly membranous at the margins, nearly as large as the disk flowers, longer than the ligules. Akenes very glabrous; pappus of a tawny reddish color.

* My thanks are due to Parke, Davis & Co., of Detroit, Mich., for the very liberal supply of drug for this analysis.

There are only two works in which any reference to the medicinal properties of this drug can be found (RUSBY, *Druggists' Bulletin*, 441). One is *Historia Fisica y Politica de Chili, Flora*, Tomo iv., p. 43, where it is stated: "It grows in the high ranges of Hardato (Province of Coquimbo). The peasants use it to cure ulcers of horses and other animals." The other work is *Elementos de Botanica para el Uso de los Estudiantes de Medicina y Farmacia en Chili*, by DR. R. A. PHILIPPI, p. 324, in which the following statement may be found: "The peasants use it in the diseases of women and to cure ulcers of horses," etc.

There appeared, as before noted, in the *Bulletin Général de Thérapeutique*, of February 28, 1889, p. 160, a paper by DR. G. BAILLÉ, in which he stated that DR. DUJARDIN-BEAUMETZ had received from DR. CERVELLO, of Valparaiso, Chili, a small supply of the plant, which he stated, possessed an especial action in certain gastro-intestinal diseases, especially chronic hæmorrhages of the lower bowel, flatulent dyspepsia, indigestion, etc.

DR. DUJARDIN-BEAUMETZ referred the drug to DR. BAILLÉ for investigation. The latter found on examination of the drug a volatile and a fixed oil, the latter in considerable quantity, and having the same odor which characterizes the plant, also large quantity of a brown acid viscous resin, which possessed the odor of the plant and an irritating taste, together with a little tannin and other ordinary vegetable constituents. "To this resin and oil then," Dr. Baillé says, "we must refer the medicinal properties of the plant." As to the properties his observations are given in full. He concludes as follows: "*Hysterionica Baylahuen*, given in infusion, is an excellent anti-diarrhœic and has produced in the hands of Dr. Cervello excellent effects in the treatment of malarial and chronic dysentery. The results obtained by us in the treatment of diarrhœa of phthisis, led us to test its employment in the diarrhœas supervening upon the course of certain cachectic maladies, as cancer, and so on. The infusion of *Hysterionica*, perhaps, permits of continued urgent employment of a medicament like copaiba and mercury by suppressing the diarrhœa which these occasion. *Hysterionica* can perhaps replace the balsamics and other applications in the treatment of the respiratory apparatus. Given in the form of an alcoholic tincture this plant does not produce constipation. Applied to the treatment of the genito-urinary apparatus, it appears to produce

the result of modifying the urine and diminishing the bad odor. In the treatment of ulcers, applying its collodion to the wound gives an antiseptic covering, which excludes the contact of air and of micro-organisms and facilitates cicatrization. The infusion has given us the best results and it is in the infusion that we advise the use of *Hysterionica.*"

In the *Therapeutic Gazette*, 15, 67, DR. H. GILBERT states that Haplopappus Baylahuen is of the utmost value in chronic diarrhœa.

The infusion of the drug was examined for a crystalline principle, but all efforts in that direction have as yet failed, tannin being the only important constituent found.

The resin which constitutes a large portion of the drug (21·15 per cent.) was examined. In order to obtain it the drug, in moderately fine powder, was mixed with coarsely powdered glass; placed in a "Gomberg's extraction apparatus," and extracted with alcohol until the menstruum came through nearly colorless, which took from 18 to 24 hours, after which the resin was obtained by the usual method.

After trying many methods for the separation of the resin the following was found the most satisfactory.

The resin was treated with a one-fourth saturated solution of sodium hydroxide, raised to the boiling point, when two layers were formed, one dark green and thick, the other brown and clear. The brown solution was syphoned off and when cold, to it was added a solution of barium chloride, which formed a light greenish yellow precipitate (*a*) and a light yellow supernatant liquid.

The green solution was dissolved in hot water and while hot barium chloride was added. A precipitate (*b*) green in color and somewhat darker than (*a*) was obtained. The supernatant liquid was dark reddish color.

Alpha.—The light greenish yellow precipitate (*a*) on being decomposed by hydrochloric acid gave a dark brown precipitate which was difficultly soluble in alcohol.

Beta.—The yellow supernatant liquid from (*a*) was made acid with hydrochloric acid, giving a yellow amorphous precipitate, which after being dissolved in alcohol and the alcohol evaporated, a soft solid resin remained.

Gamma.—The precipitate (*b*) after treatment with hydrochloric acid gave a granular green precipitate, which settled very rapidly into a cake.

Delta.—The supernatant liquid of the precipitate (*b*) was made acid with hydrochloric acid, which precipitated a reddish brown substance in flocks, which after solution in alcohol and evaporation formed into a soft mass.

The different physical characters, together with the following reactions with reagents, have led me to believe the four above-named substances to be different.

Reagents.	Alpha.	Beta.	Gamma.	Delta.
Sulphuric acid.	Seal brown with green edge.	Reddish brown with green edge.	Crimson.	Red with light green edge.
Fuming nitric acid.	Very light yellowish brown.	Reddish yellow with green edge.	Very light yellow solution.	Reddish yellow like β with greenish edge.
Sulphuric acid and sugar.	Yellowish brown with green edge.		Dark red with purple edge.	Dark red.
Froehde's reagent.	Brown with green edge after standing.	Dark brown with emerald green edge.	Dark brown with blue edge.	Dark brown with green edge.

The original resin is bronze colored, but if left in contact with air becomes dark green.

In the analysis of the drug the scheme of DRAGENDORFF was followed.

I. The drug was ground in an iron mortar until all passed through a No. 80 sieve. After the iron, which had been mechanically obtained from the mortar, was removed by a magnet, one gram was heated in an air bath at 110° C. to constant weight, which was ·9124 Gm., making a loss of ·0876 Gm., of which ·0665 Gm. was volatile oil, the remainder, ·0211 Gm., being *moisture.*

II. One gram was ignited at a low red heat in a platinum crucible. The resulting ash weighed ·1269 Gm., of which ·0171 Gm. was soluble in water, ·0605 Gm. soluble in hydrochloric acid ·0493 Gm. insoluble in these solvents. The ash consisted of the usual constituents.

III. Ten grams of the drug were macerated for eight days in 100 cc. of petroleum spirit, boiling between 40° and 80° C. with occasional shaking.

(*a*) The volatile oil was estimated by the method of Osse (*Archiv d. Pharm.* [3] 7, 104) ·665 Gm. was found.

(*b*) After the estimation of (*a*) the remainder of the petroleum spirit extract was evaporated to dryness, the temperature then raised to 110° C., water was then added and the residue again evaporated to dryness. The residue was treated with a small quantity of petroleum spirit, when the spirit evaporated. No fixed oil could be detected. The resin, which weighed ·479 Gm., was of a green color, and easily soluble in cold solution of potassium hydroxide.

IV. After the drug had been thoroughly washed with petroleum spirit, it was dried at the ordinary temperature in a current of dry air, then macerated for seven days, with occasional shaking, in 100 cc. of ether, which had been allowed to stand over calcium chloride, then distilled.

(*a*) The ether extract was evaporated to dryness in a current of dry air. The residue was treated with water, which took up a substance which had a pleasant acetic odor and was acid to litmus, but which was present in such small quantity that no attempt was made at quantitative estimation.

(*b*) After treatment with water, the residue was placed in a desiccator over sulphuric acid until dry, when it was treated with petroleum spirit, but, as before, no fixed oil could be extracted. The residue 1·329 Gm. was a soft resin.

V. After dissipation of the ether, the drug was macerated in 100 cc. of absolute alcohol, for seven days, with occasional shaking.

(*a*) The alcoholic extract was partly evaporated under diminished pressure, then finished on the water bath. The residue was treated with water, which took up ·028 Gm. This water extract had an acid reaction, was turned slightly green by ferric chloride, and was precipitated by lead acetate.

(*b*) The remainder of the residue, ·307 Gm. was a greenish yellow resin, soluble in potassium hydroxide and in dilute ammonia water.

VI. The drug, after extraction with alcohol, was then macerated for two days, with occasional shaking, with 100 cc. of water.

(*a*) An aliquot part of the water extract was taken, mixed with two volumes of absolute alcohol, allowed to stand in an ice chest for two days. The precipitate was then collected, washed with 66 per cent. alcohol, ·146 Gm. was found, which consisted of mucilage, together with some albuminoid matter.

(*b*) The filtrate and washings from (*a*) were evaporated to a small bulk, then 4 volumes of absolute alcohol were added. A precipitate was formed which weighed ·262 Gm. This precipitate consisted of dextrin and allied substances.

(*c*) The filtrate and washings from (*b*) were heated to drive off the alcohol, then lead acetate was added and the solution set aside for two days. The precipitate was collected and ignited according to the directions given by FRESENIUS (*Quantitative analysis*, 1881, 299, [b]). The organic matter in the precipitate was ·227 Gm., which may be noted as *organic acids*, of which tannic acid constitutes the largest part.

(*d*) The remaining ·347 Gm. of the water extract consisted of coloring matter, albuminoids, etc.

VII. The drug while still moist was macerated with 100 cc. of a ·2 per cent. solution of sodium hydroxide for one day.

(*a*) An aliquot part of the solution was mixed with 3 volumes of 90 per cent. alcohol, and allowed to stand 24 hours in an ice chest. The precipitate weighed ·142 Gm. It consisted of mucilaginous substances (pectin) and albuminoids.

(*b*) The filtrate from (*a*) was evaporated to dryness, weighed, and then ignited; the loss was ·222 Gm., which was mostly decomposition products and albuminoids not precipitated by alcohol.

VIII. The residue from VII was washed with water, then macerated in 100 cc. of a 1 per cent. solution of hydrochloric acid. No starch could be found under the microscope, so only the estimation of parabin and calcium oxalate was found necessary.

(*a*) The solution was raised to boiling, filtered while hot, an aliquot part neutralized with ammonia, then 3 volumes of 90 per cent. alcohol were added. The precipitate was collected, dried and weighed, then ignited; the loss, which was ·340 Gm., was parabin. (*b*) The remaining calcium oxide was calculated to oxalate, which was ·143 Gm.

IX. The residue from VIII was first washed with water, then alcohol, and then with ether, finally dried, weighed, then ignited, the difference being cellulose, lignin, etc., which was 3·752 Gm.

Summary:

	Per Cent.
Moisture, I.,	2·11
Ash, II.,	12·67

	Per Cent.
Volatile oil, III. (*a*),	6·65
Resin III. (*b*), IV, (*b*), V (*b*),	21·15
Organic Acids (Tannin, etc.) V. (*a*), VI. (*c*),	2·55
Mucilage, VI. (*a*),	1·46
Dextrin, VI. (*b*),	2·62
Albuminoids, coloring matter, etc., VI. (*d*),	3·47
NaOH extract not precipitated by Alcohol, VII. (*b*),	2·22
NaOH extract precipitated by Alcohol, VII. (*a*),	1·42
Calcium oxalate, VIII. (*b*),	1·43
Parabin, VIII. (*a*),	3·40
Cellulose, Lignin, etc., IX.,	37·52
Loss,	1·33

UNIVERSITY OF MICHIGAN,
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ANTHEMIS COTULA.

BY WILLIAM H. HAAKE, PH.G.

Contribution from the Chemical Laboratory of the Philadelphia College of Pharmacy, No. 91.

Mayweed is naturalized in the United States from Europe, and is found in roadsides and other waste places. The flowers which are employed as a domestic remedy were used for this investigation.

On drying some of the powder to constant weight at 100°, the loss which was regarded as moisture amounted to 5·73 per cent. 7·82 per cent. of ash were obtained by ignition, of which 41·22 per cent. dissolved in water, 45·80 per cent. in dilute hydrochloric acid, and the remainder, 12·97 per cent., was regarded as silica and silicates.

Fifty grams of the finely powdered drug were exhausted with petroleum ether, the solvent recovered by distillation and the residue found to amount to 1·33 per cent., of which ·66 per cent. were dissolved by 95 per cent. alcohol, indicating fat, ·50 per cent. soluble in absolute alcohol, indicating wax and ·16 per cent. of caoutchouc. There was also a distinct quantity of volatile oil, which, however, was not estimated.

Stronger ether extracted 1·11 per cent. of resin together with traces of a bitter principle and a small quantity of organic acid, which darkened with ferric chloride. This acid was obtained by dissolving the resin in alcohol, pouring the solution into water acidified with hydrochloric acid and the clear solution, after separa-

tion of resin, agitated with ether or chloroform, which left a slightly acid residue on evaporation.

Absolute alcohol extracted from the drug 2·18 per cent. of resin, with traces of an organic acid and traces of a bitter principle. The solution of the alcohol extract dissolved in alcohol, poured into water acidified with dilute hydrochloric acid and then made alkaline yielded on agitation with chloroform and evaporation of this solvent a substance which, when dissolved in dilute acid, gave precipitates with alkaloidal reagents, similar indications were gotten from residues of agitations of ether and chloroform with the acidified aqueous solution of the alcohol extract.

Water extracted from the drug 17·78 per cent. of solid matter, 3·20 per cent. of which was ash, leaving 14·58 per cent. of organic matter in the aqueous extract. This contained 3·20 per cent. of mucilage, 4·32 per cent. of glucose and 3·62 per cent. of unreducible sugar, leaving 3·44 per cent. of undetermined extractive. The drug then yielded 7·74 per cent. to dilute soda solution. 2·96 per cent. of this consisted of albuminoids; the remainder of the alkaline extract was undetermined. Dilute hydrochloric acid then extracted from the drug 3·60 per cent., of which 1·28 per cent. was found to be calcium oxalate and 1·13 per cent. pararabin.

The lignin was found to equal 5·43 per cent., and the amount of cellulose was not determined.

A convenient quantity of the drug was distilled with a one per cent. aqueous solution of sulphuric acid. The distillate was neutralized with calcium carbonate and filtered, the filtrate was concentrated to a small bulk and a portion warmed with sulphuric acid, when a strong odor of valerianic acid was evolved; to another portion sulphuric acid and alcohol were added when the odor of valerianic ether became very apparent on warming.

A quantity of the drug was distilled with milk of lime, the distillate, which was alkaline, was acidified with hydrochloric acid and agitated with ether which removed volatile oil. The distillate was then made alkaline and agitated successively with ether and chloroform. A slight excess of hydrochloric acid was added to each and the solvent allowed to evaporate spontaneously. The two residues appeared to be identical, so they were mixed, dissolved in ether and set aside to evaporate spontaneously which left the alkaloid in a pure state. This alkaloid was a reddish brown volatile liquid,

with a characteristic odor and taste, and soluble in chloroform, ether, alcohol and water. When acidified, its aqueous solution produced a yellow precipitate with Mayer's reagent, a dark yellow with potassium tri-iodide, a reddish with tannin and a reduction with auric chloride.

In addition to the usual plant constituents mayweed contains small quantities of a bitter principle, valerianic acid and a volatile alkaloid. The small amount of bitter principle possessed the properties of a glucoside.

POLYGONATUM BIFLORUM.

By Benjamin H. Gorrell, Jr., Ph.G.

Contribution from the Chemical Laboratory of the Philadelphia College of Pharmacy.—No. 92.

This plant flourishes abundantly in North America from New Brunswick to Florida and west to Minnesota, Eastern Kansas and Texas, being most abundant on wooded hillsides, and where the soil is not too dry or sandy.

The drug consisting of the underground portion comes in the market in pieces $\frac{1}{8}$ to $\frac{1}{4}$ inch in diameter and 2 to 6 inches in length. The larger pieces are sliced. The color is pale yellow, odor peculiar and reminding one of squill. The fracture is rather short and horny showing internally a white color. The taste is mucilaginous, sweetish and afterward faintly bitter.

Fifty grams were dried at 100° and afterward reduced to a very fine powder. This powder if exposed to the air absorbed moisture rapidly and became solid, in this respect very much resembling squill. The moisture was found to be 5·9 per cent. This was gotten by taking that which had been dried at 100° and heating to constant weight at 110°. The ash of that dried at 100° was found to be 2·30 per cent. 14·70 per cent. of this ash was soluble in water and 73·30 per cent. in dilute hydrochloric acid.

The usual solvents were employed successively on the drug.

Petroleum ether extracted ·22 per cent. which was not further examined.

Stronger ether dissolved ·12 per cent., resinous in character. This treated with warm water and the water tested with ferric chloride indicated the absence of tannin or gallic acid.

This solution also slightly reduced Fehling's solution, and gave an aromatic odor on heating with dilute hydrochloric acid.

The absolute alcohol extract amounted to ·72 per cent., which was found to be resinous in character. When, however, it was treated with water a small quantity of something was dissolved which reddened litmus paper, but was not affected by ferric chloride.

Water proved to be the best solvent of the drug, extracting 74·50 per cent. 15·70 per cent. of this was glucose, 18·40 of non-reducible sugar and ·60 per cent. of mucilage. The remainder of the aqueous extract appeared to consist of sinistrin, and to this constituent is due the resemblance to squill.

The dilute alkali extract of the drug amounted to 5·00 per cent., which was nearly all precipitated by alcohol and acetic acid, indicating it to be largely composed of albuminoid matter.

The dilute hydrochloric acid extract consisted of 3·50 per cent. of calcium oxalate and ·50 per cent. extractive.

Chlorine water extracted 2·34 per cent. of lignin. There remained 4 90 per cent. of cellulose. A special examination was made of the sinistrin by treating about 50 grams of the coarsely powdered drug with 100 cc. of hot water. The mixture was strained and the same operation repeated twice. The resulting aqueous extract was evaporated to a syrupy consistence and treated with four volumes of absolute alcohol which precipitated the carbohydrates, other than sugars. This precipitate was then rapidly filtered off and dissolved in water and precipitated with 95 per cent. alcohol to remove mucilage. The filtrate from the mucilage was evaporated to dryness, a portion dissolved in water reduced Fehling's solution and was not precipitated by basic lead acetate. Another portion dissolved in 40 per cent. alcohol was precipitated by saturated solution of barium hydrate. These properties, together with the physical one of "puffing up" when the solution was evaporated to dryness, exactly as does a solution of sinistrin from squill, confirmed the previous conclusions. Several samples of the drug were obtained from different sources and all gave indications of containing sinistrin.

CANNABIS INDICA.

Does it Contain an Alkaloid?

By Henry F. Smith, Ph.C.

This is a drug from which the alkaloid has long been sought, and numerous investigations have been made. Many have disputed the presence of an alkaloid.

In 1846, T. and H. Smith, of Edinburgh, published in *Pharm. Jour.*, vol. 6, p. 171, a method for the preparation of hemp resin, which they claim is the active principle.

In 1857, Personne published an article in *Jour. de Pharm.*, vol. 39, p. 48, which states that he received a volatile oil by distillation of the plant with water. This volatile oil was composed of two hydrocarbons; one ($C_{18}H_{20}$) a light hydrocarbon, the other ($C_{18}H_{22}$) a solid crystalline substance. To the former he gave the name cannabene, to the latter hydride of cannabene. This oil he claims to be the only active principle.

In 1883, Dr. Mathew Hay made a chemical examination of this drug, and claimed to have found an alkaloid, to which he gave the name tetano-cannabine. (*Pharm. Jour. Trans.*, vol. 13, p. 998.)

In 1884, Warden and Waddell, of Bengal Medical Service, after diligent search, failed to isolate Dr. Hay's alkaloid. (*Pharm. Jour. Trans.*, vol. 15, p. 574.)

In 1884, Merck of Darmstadt applied the term cannabin tannate to a glucoside contained in Indian Hemp, which he combined with tannin. Dr. Dornmüller asserts that this tannate of cannabin has soporific effects, but Dr. H. C. Wood has found it to be inert physiologically. (*Pharm. Jour. Trans.*, vol. 15, p. 574).

In 1876, Preobraschensky operated on hashish obtained from Turkestan. He asserted that the active principle was not a resin, but an alkaloidal body which he recognized as nicotine. (*Pharm. Zeit. f. Russland*, p. 705.)

In 1886, Kennedy made a search for nicotine in Indian hemp without success, but obtained indications of the presence of another alkaloid. (Proceedings Am. Phar. A., 1886, p. 119.)

In 1881, Louis Siebold and T. Bradbury examined Indian hemp for nicotine. They failed to find the same, but separated what they stated to be a volatile alkaloid, and gave it the name cannabinine. An outline of their method is as follows:

Ten pounds of Indian hemp were placed in a still, with a suitable quantity of water, rendered powerfully alkaline with caustic soda, treated with steam until one-half of the water was carried over. This aqueous solution was neutralized, treated with ether, the ethereal liquid rejected, the aqueous solution then made alkaline, and shaken out with ether several times; the united ethereal solutions were allowed to evaporate to dryness at an ordinary temperature,

when there remained a transparent, varnish-like substance, with a strong peculiar odor, somewhat mice-like, which became more striking still on the application of heat, without, however, possessing the characteristic pungency of nicotine. The odor somewhat resembled that of conine, but was decidedly less powerful and nauseous. This substance was soluble in alcohol and ether, but only slightly soluble in water, and still less soluble in solutions of caustic alkalies. It was powerfully alkaline to test paper, capable of neutralizing acids, and its solutions gave precipitates with the general alkaloidal reagents. From ten pounds of the drug they obtained about two grains of the alkaloid.

In my investigation upon Indian hemp, a principle was found which was identical in color, consistence, odor, solubilities and gave the same alkaloidal tests as this so-called cannabinine, although the methods used in obtaining this principle were quite different. The first method by the writer is as follows:

The analysis.—Forty grams of the drug was reduced to a number 80 powder, macerated with 175 cc. of Prollius' liquid for 48 hours, occasionally agitated, the mixture transferred to a filter, allowed to drain well, and the filter washed with 50 cc. of Prollius' liquid. To the clear filtrate in a separatory funnel 75 cc. of dilute H_2SO_4 (20 per cent.) were added, allowed to stand 4 hours, occasionally agitated the water solution drawn off, the operation repeated with 30 cc. of dilute H_2SO_4 (20 per cent.), and the Prollius solution now rejected. To the water solutions in a separatory funnel 75 cc. of ether were added, then made alkaline with NaOH, allowed to stand for one hour, occasionally agitated, the ethereal solution drawn off, the operation repeated with 25 cc. of ether, and the water solution rejected.

The ethereal solutions were united, transferred to a separatory funnel, 75 cc. of dilute H_2SO_4 (10 per cent.) were added, the mixture allowed to stand for one-half hour, occasionally agitated, the water solution drawn off, the operation repeated with 25 cc. of dilute H_2SO_4 (10 per cent.), and the ethereal solution rejected. The water solutions were united, transferred to a separatory funnel, 50 cc. of ether were added, made alkaline with NaOH, allowed to stand for one-half hour, occasionally agitated, the ethereal solution drawn off, the operation repeated with 25 cc. of ether, and the water solution rejected. The ethereal solutions were united, evaporated to dryness on a water bath, and there remained a yellowish green, trans-

parent varnish-like substance. It had a strong, peculiar odor, resembling that of conine, still stronger on the application of heat, was soluble in ether, chloroform, alcohol, and acidulated water, but only slightly so in water, was alkaline to test paper and capable of neutralizing acids. When dissolved in very dilute H_2SO_4 (1 gtt. in 5 cc.) it gave a clear yellow solution and the following reactions:

With Mayer's reagent, abundant white precipitate.

KI + I + H_2O, abundant brown precipitate.

Phosphomolybdate of Soda, abundant white precipitate.

Solution Picric Acid, abundant yellow precipitate.

Solution $K_2C_2O_7$, yellowish brown precipitate.

Solution NH_4OH, yellowish green precipitate.

Solution NaOH, yellowish green precipitate.

Solution KOH, yellowish green precipitate.

Solution KI, yellowish precipitate.

Solution Tannic Acid, yellowish brown precipitate.

The second method was upon a somewhat larger scale and by a different process. In this method one kilo of the drug was rendered to a number 40 powder, mixed with 3,000 cc. of 95 per cent. alcohol, and macerated for 13 days, occasionally agitated; now transferred to a cylindrical percolator, allowed to drain well and the drug exhausted with 1,000 cc. of 95 per cent. alcohol. The alcoholic fluid extract was made slightly acid with H_2SO_4, allowed to stand for 3 hours, the alcohol driven off on a water bath at a temperature not exceeding 89° C. and small quantities of acidulated water added from time to time. The remaining solution with resin was transferred to a filter, which retained the resin, and the filter washed with 50 cc. of acidulated water. The filtrate of a clear and yellowish-brown color, was transferred to a separatory funnel, 150 cc. of ether were added, then rendered alkaline with NaOH (5 per cent.) allowed to stand for one hour, occasionally agitated, ethereal solution drawn off, the operation repeated with 100 cc. of ether, and the water solution rejected. The united ethereal solutions were transferred to a separatory funnel, and 100 cc. of dilute H_2SO_4 added; the mixture was allowed to stand for one-half hour, occasionally agitated, the water solution drawn off, the operation repeated with 50 cc. of acidulated water, and the ethereal solution rejected. The water solutions were united, transferred to a separatory funnel, 75 cc. of ether were added, made alkaline with NaOH,

allowed to stand for one-half hour, occasionally agitated, the ethereal solution drawn off, the operation repeated with 50 cc. of ether, and the water solution rejected. The ethereal solutions were united and evaporated to dryness on a water bath. The residue which remained was in larger quantity, of the same color, consistence and odor as that found in the previous method. The quantity obtained from one kilo of the drug was about 75 m. g. A portion of the residue made into a chloride gave the same alkaloidal reactions, but more abundant precipitates were obtained.

A small portion of the residue gave the following test for nitrogen: About one m. g. of the residue was placed in a test tube with 2 or 3 m. g. of metallic sodium, fused together by means of a Bunsen flame for 2 or 3 minutes, cooled, 10 cc. of water added, filtered, heated with 4 or 5 m. g. of $FeSO_4$, acidulated with H_2SO_4, a drop or two of solution of Fe_2Cl_6 added, at first the solution turned pale blue; upon standing a short time a blue precipitate of prussian blue settled at the bottom of the test tube. (Conversion of the nitrogen into cyanogen. Prof. A. B. Prescott's Organic Analysis, p. 199).

In forming salts, a crystalline sulphate was obtained in the following manner: About 50 m. g. of the residue was neutralized with very dilute H_2SO_4, allowed to evaporate to dryness, this residue dissolved in alcohol, the alcoholic solution allowed to evaporate spontaneously, crystals were formed which could be seen with the naked eye. Under the microscope they appeared to be long needle-shaped crystals, and of a white color.

In making a quantitative estimation, a method in which the fluid extract is used, proposed by J. U. Lloyd, was followed out, as follows: 100 cc. were rubbed with 20 cc. of solution of perchloride of iron (U. S. P. strength), the mixture triturated with $NaHCO_3$ until a stiff magma was formed. This magma was abstracted with chloroform, using 50 cc. four different times and decanted after each addition. The chloroformic solutions were united, extracted by rotating in a separatory funnel with 75 cc. of dilute H_2SO_4 (1–50) two different times, and the chloroformic solution now rejected. The water solutions united, were extracted with ether, using 50 cc. two different times (this extracts the chlorophyll), and the ethereal solution rejected. The water solution was made alkaline with NaOH, shaken out two different times with chloroform, using 50

cc. and 25 cc., respectively, the chloroformic solutions united and evaporated to dryness on a water-bath. The same residue remained as found in the two previous methods. The amount obtained from 100 cc. of fluid extract was 10 m. g. or ·01 per cent.

The drug upon which I worked was furnished by Messrs. Gilpin, Langdon & Co., of Baltimore, Md., to whom my thanks are due for the favor.

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SCHOOL OF PHARMACY OF THE UNIVERSITY OF MICHIGAN, June, 1891.

THE MANIHOTS.

BY ARTHUR EDWARD HANSON, PH.G.

From an Inaugural Essay presented to the Philadelphia College of Pharmacy.

The Mandioca or Cassava plant appears to belong to Brazil; according to tradition, it was given to the Indians of the "Tupi" tribe by two strangers, one of whom was a very old man, with a long white beard, named "*Tyomé.*" They taught the use of the mandioca, but as the Indians proved ungrateful and treated them roughly, they disappeared as mysteriously as they had come. Other tribes of Indians say that this plant was of divine origin and given to them by the god "*Tyomé.*"

The first notice of the mandioca to Europeans was given by Piso, in the year 1648. He described the plant and its culture and stated that it was to be found as far as 30° S. L. and in the tropical zone. By this it may be seen that the mandioca grows from one extreme to the other of Brazil. Now it is cultivated from Florida to Tierra del Fuego, in several parts of Asia and to a great extent

in Africa, where it is considered one of the most important of foods.

The name Mandioca has been taken from the Tupi language, meaning "Something baked at home," "*Mandi*," baked, "*Oca*" house.

The genus Manihot is found in America only, and almost exclusively in dry and hot regions; of the 80 known species, 71 belong to Brazil, therefore, I should say that Brazil ought to be called its home. On the Western coast of Africa the bitter mandioca is largely cultivated, and some writers have said that it was brought over by the negroes; but this hardly seems credible, as the Portuguese, when they discovered Brazil, found the mandioca cultivated by the Indians, under many names, thus proving that the culture had been long continued. It is true that the seeds of mandioca preserve their fertility for a considerable length of time, and that they may possibly be carried across the ocean by the currents.

Varieties and Description.—There are two kinds of mandioca, viz: The *bitter*, or *red* or *black*, Manihot utilissima, *Pohl*, and the *sweet* or *white* (Manihot palmata, *M. Arg.*), from which spring the many useful varieties, distinguished chiefly by their color.

Their leaves, when bruised or pressed, have an odor similar to that of peach leaves, and the odor of the peach kernel is observed in the fleshy rhizomes and roots. The latter are called *mandioca*, while the whole plant is named *maniva*.

Mandioca doce (sweet) or Manihot palmata, is in the Southern Provinces (now States) called *aypim*, and in Northern Provinces *macaxera*. It is a bush, about one to two meters in height, monœcious, stems and branches light green; the leaves, with three, five or seven lanceolate lobes, dark green on upper surface; blossoms yellowish. The roots are white, weigh about one kilo, are 30 to 45 centimeters long, 4 to 5 centimeters thick, and covered with a thick bark, which is easily removed, even with the fingers. In the white varieties the quantity of milky fluid is scarcely observable, and indeed if present is always in the bark; a white fibrous wood bundle runs through the center, which is as thick as ordinary twine (about 1-16 in.), and is never found in the bitter mandioca. The white mandioca is seldom used for flour (*farinha*) and should never be dug up for use while flowering, as it

is then watery and has an insipid taste. These fleshy roots, when boiled or baked, become mealy like potatoes, and frequently take their place.

Mandioca branca (white) is similar to the above, but the bark is not as easily removed; it is extensively cultivated and greatly esteemed by the negroes.

There are about 15 more well known varieties resembling the preceding, like *Maniva manterga* (butter); *suissa* (Swiss); *amarella* (yellow) and others.

"*Manihot utilissima*" is commonly called bitter mandioca; all its varieties have more or less red brown, blackish stems and branches; the leaves are five lobed, dark green and sometimes red-brown on lower surface; the seeds are small and resemble those of Ricinus. The plant is 3 to 5 meters high; stem and branches are woody; the fleshy root is about one meter long, 36 cm. thick, and has a brown bark. The whole plant, including the roots, contains a great deal of milk juice, which is of thick consistency, and reddens blue litmus. All bitter mandiocas are poisonous, due to the presence of hydrocyanic acid, or a substance which is easily converted into it; a very small quantity is sufficient to extinguish life. After being exposed to the air for thirty-six hours, the juice loses its deleterious properties, and the same thing happens when it is boiled, or submitted to distillation.

Some botanists regard *Manihot utilissima* as the mother plant, and all other cultivated mandiocas as derivatives of the same.

Mandioca assu (giant) is about 4 meters in height; stems about 7 cm. thick, red-brown; branches dark green; leaves generally 5 or 7 lobed. The root of this variety is about 3 meters long and 15 centimeters in diameter; some enormous specimens have been obtained, one was said to weigh 150 kilos, but the average weight is 29 to 30 kilos (or over 60 pounds); if allowed to grow to this size it becomes tough and woody. This mandioca is generally fed to cattle.

Many other varieties are of more or less importance; among these may be mentioned *Maniva manipeba*, which is tall and differs by being bulbous, scattering its bulbs in different directions, and in this way making itself very firm in the soil; there are 2 varieties, both being extremely poisonous; animals will not even touch one of these, and the second gives a flour which ants also reject.

Cultivation of the Mandioca.—It was formerly planted by cutting the stalk in pieces after the manner of sugar cane, each node being planted about 6 inches deep and covered with earth, but nowadays in some parts the soil is ploughed. The natives say the old manner of planting yielded better results. The plant flourishes best in dry and sandy soil, exposed to the sun, and is not injured by storms or rains; the leaves may be affected, but not the roots.

The mandioca is planted in the months of March and September (these being the months for planting all roots and grains); it takes from 18 months to 2 years before it is ready for use, and 3 years before it is mature. It may remain in the ground for five years, after which length of time it becomes hard and woody. It belongs to the richest of starch producers, and from a given space of ground will yield six (6) times as much flour as any other amylaceous plant.

Manufacture of "Farinha."—The root is scraped, washed and grated and then put into baskets called *tipiti*, which are made from a vine called *sepoy;* the poisonous juice is expressed and collected in troughs where it is allowed to stand for some time with the water used for washing the pulp, the liquid is poured off, and the sediment, which is a white fecula, is dried; it is called *tapioca.*

After taking the pulp from the press out of the basket, it is sifted and graded according to fineness, and afterward roasted or torrefied, whereby it is deprived of the poisonous properties, and assumes a granular appearance.

Farinha is also made by another process; the root is placed in a large basket made of pliable bamboo, immersed in a stream of running water, and allowed to remain there for seven or nine days the root is then soft, is pounded in a wooden mortar, sifted and torrefied as above; this flour is called "*farinha puba.*"

The furnace for making the farinha is built of clay or some dry bricks, and has a large deep circular copper pan, where the flour is put to bake, stirred and tossed with paddles until it is thoroughly dry. Quite a variety of cakes are made out of the farinha while it is yet damp.

The "Beyou," much appreciated by the natives, is made by taking a handful of the farinha and placing it in little portions all over a hot pan, after which, beginning with the first, these portions are flattened, thinned, then rolled up into numerous fancy shapes. They

are, indeed, very delicious. The farinha, mixed with water, and made into poultices, is used very much for inflammations of various kinds and abscesses.

OLIVE OIL.

By A. B. Stewart, M.A., Ph.G.

On the 15 of June, 1871, the writer bottled twelve two ounce bottles of pure olive oil, which were boxed and kept on a garrett in darkness, and where the temperature in winter was not sufficient to cause precipitation of margarin. On the 15th of June, 1891, the oil was examined; three bottles had precipitated 25 per cent. of margarin, four 20 per cent. and five 16 to 18 of margarin. When placed in hot water the oil instantly became deep green in color and transparent; on being placed in a dark closet for 24 hours it became opaque, 24 hours longer deposited about $\frac{1}{16}$ margarin, and after 7 days complete precipitation took place; when exposed to the light of the sun the margarin would rise toward the top, and in a few seconds the solid part would become translucent. It then becomes obvious that age and darkness cause precipitates, to a greater or less extent, of the margarin contained in all oils, from the fact that on repeated closeting of the oil precipitation would occur, while sun-light would render it translucent and transparent. This oil was then subjected to chemical tests for purity. Mercury 18½ grs., and nitric acid 21½ grs., sp. gr. 1·35, were mixed with the oil, which failed after a few hours to be converted into a solid mass. Sulphuric acid, by a tinge of rose-color, in three or four shakings in the test tube, revealed the presence of poppy oil. Nitric acid failed to reveal the green color given to the pure oil. Equal parts of nitric and sulphuric acids mixed with equal weights of the oil neither revealed a bright yellow color of the pure oil nor the beautiful deep green color of the oil of sesamum. After testing pure lard oil, the results were compared and revealed that what was apparently pure olive oil, was in reality lard oil with a variable proportion of cotton seed oil and minute traces of poppy oil.

Duncannon, Pa.

COMPARISON OF SOME COMMERCIAL ACETIC ETHERS.

By Robert Glenk, Ph.G.

Although having no great pharmaceutical or medicinal importance, acetic ether is, however, used, technically to a considerable

extent, and a large bulk of it goes into the manufacture of artificial fruit essences. It has also of late years been used considerably for giving the "vinegar flavor" to artificial vinegar, made by diluting the commercial glacial acetic acid. One fluid ounce of acetic ether to a barrel gives a fragrant fruity odor to the compound, which is very desirable, and in which many of the natural vinegars are lacking. It was in this connection that the samples for comparison were obtained, and as a basis a sample of acetic ether was made as free from alcohol, water and impurities as it was possible to make it.

Absolute Acetic Ether.—Dried acetate of sodium was decomposed with concentrated sulphuric acid and alcohol, and the acetic ether distilled off by the aid of a water bath. This distillate was then thoroughly washed with water containing about 25 per cent. of calcium chloride in solution (the ether being less soluble in this mixture than in water alone), and the washing repeated successively five times to remove the alcohol present; then digested with fused chloride of calcium to free it from water, and finally distilled over anhydrous acetate of sodium on a water bath.

The separation of the last trace of alcohol by the above process is very tedious and wasteful; in acetic ether made by the following method, this disadvantage is obviated: 150 parts of dried sodium sulphethylate were decomposed by 85 parts of dried acetate of sodium and about 20 parts of sulphuric acid, and the acetic ether which was produced by the reaction, was distilled off from the sulphate of sodium, and condensed in a receiver surrounded by ice. This ether had an acid reaction from the presence of free acetic acid, but was entirely free from any contamination with alcohol. To free it from acid, it was shaken with a few crystals of bicarbonate of potassium until all acidity had disappeared. It was then washed with a 3 per cent. solution of permanganate of potassium to free it from any oxidizable compounds which may have been present; then digested with half its weight of fused chloride of calcium, decanted and distilled, by the aid of a waterbath over anhydrous acetate of sodium.

This gave as a result a clear, colorless, refractive, volatile liquid, with a burning taste. The odor on fresh distillation was very weak, but on standing for a day was more decidedly developed. This ether had a specific gravity of ·8893 at 15·5° C., and a boiling point of 72° C. It had a neutral reaction and dissolved in 11 parts of

water at 16° C. It is clearly miscible in any proportion with chloroform, ether, petroleum ether (40° C.), benzol, benzin, fixed and volatile oils, liquid petrolin, and glacial acetic acid; also soluble in 2½ times its volume of bisulphide of carbon, but only very slightly soluble in glycerin. It dissolves iodine and bromine freely, sulphur and phosphorus with difficulty. Quinine, cinchonine, strychnine, tannin, pyroxylin and resins are also freely soluble in absolute acetic ether. Alkalies decomposed it into acetic acid and alcohol.

TABLE SHOWING COMPARISON OF SOME COMMERCIAL ACETIC ETHERS.

	1	2	3	4	5	6	7	8
Reaction, ...	neutral	neutral	acid	acid	acid	acid	acid	strongly acid
Sp. g. at 15·5° C., . . .	·8893	·886	·878	·877	·875	·857	·877	·886
Boiling point, ...	72° C.	70° C.	71·5° C.	72° C.	72·5° C.	75° C.	74° C.	75° C.
H_2SO_4 1·82, ...	colorless	colorless	colorless	colorless	colorless	colorless	colorless	pinkish
Residue on evaporation, ...	—	—	—	—	—	—	—	—
Test Sol. $AgNO_3$, . .	—	—	—	—	—	—	—	—
Test Sol. $BaCl_2$, . . .	—	—	—	—	—	—	slightly turbid	very turbid
Solubility in Benzol, .	clear	clear	cloudy	cloudy	cloudy	cloudy	very cloudy	very cloudy
Solubility in CS_2, equal volume, . . .	clear	clear	cloudy	cloudy	cloudy	cloudy	very cloudy	very cloudy
Odor on saponifying and super saturating with dil. H_2SO_4,	no odor	no odor	butyric odor	slightly empyreumatic	no odor	no odor	butyric odor	empyreumatic odor
1% Sol. $K_2Mn_2O_8$, . . .	—	—	—	color destroyed	—	—	—	color destroyed

Number 1 is the absolute acetic ether made by the sodium ethylate process, for comparison; No. 2 is of German origin, marked "absolute C. P.;" the remainder are domestic specimens obtained from various sources.

The reaction of the different ethers was determined in the following manner; to about 7 cc. of distilled water in a test tube, 5 drops

of tincture of litmus were added and 10 drops of the acetic ether, then agitated, when in the presence of acid, the liquid would become pink. All the ordinary commercial samples with this test, gave evidence of acid reaction. The boiling point was ascertained by gradually heating by means of a water bath, about 5 cc. of acetic ether contained in a long test tube in which a few fragments of granulated zinc were previously placed, the bulb of the thermometer being immersed in the liquid, the point at which ebullition commenced was noted. The specific gravity was taken by means of a 100 grain specific gravity bottle.

On looking over the table, the great variation in specific gravities and boiling points will be noticed; in no instance do the ordinary specimens fill the requirements of the U. S. P., which are: A sp. g. of ·889–·897, and boiling point of ·76° C.

None of the ordinary specimens examined would form a clear solution with benzol, chloroform or an equal bulk of bisulphide of carbon; this was due to the presence of a larger or smaller proportion of water. The 8 specimens under comparison showed the following behavior: On shaking 15 cc. of acetic ether in a graduated tube with 15 cc. of chloroform (which was previously saturated with water by shaking it with that liquid and filtering) Nos. 1 and 2 gave clear solutions.

Nos. 3, 5 and 6, separated, ...	1 cc. or	6·6 per cent.	water.
No. 4, separated, ...	8 cc. or	5·3 "	"
Nos. 7 and 8, separated, ...	1·5 cc. or	10 "	"

On shaking 10 cc. of acetic ether in a graduated tube with 10 cc. of water at a temperature of 15·5° C., the following separation took place: No. 1, 9·2 cc.; No. 2, 8 cc.; No. 3, 3 cc.; No. 4, 7 cc.; No. 5, 6·5 cc. Nos. 6, 7 and 8 did not separate.

The several samples were also examined for fusel oil by carefully pouring a thin layer of acetic ether on some colorless sulphuric acid (1·82) in a test tube, and allowing them to remain in contact for half an hour, the absence of any red or pink color was taken as proof of the absence of fusel oil.

Acetic ether is sometimes contaminated with butyric ether; this impurity may be detected by the following method: 1 cc. of acetic ether is saponified with 3 cc. of a saturated solution of sodium hydrate, by the aid of a moderate heat; when the odor of acetic ether has disappeared, 5 cc. of water are added, and then super-

saturated with dilute sulphuric acid. If butyric ether has been present, the disagreeable odor of butyric acid will be recognized.

Acetic ether should burn with a lambent blue flame, and leave no residue on evaporation. Distilled water agitated with the ether and filtered, should give no reaction with test solution of nitrate of silver or chloride of barium. Distinct quantities of sulphuric acid could be detected in one of the samples under examination.

Aldehyd and empyreumatic impurities in acetic ether may be detected by adding 2 or 3 drops of a 1 per cent. solution of permanganate of potassium to about 3 cc. of the ether, when, in the presence of aldehyd, the pink color will be destroyed immediately.

FERROUS SYRUP OF THE HYPOPHOSPHITES.

By F. W. Haussmann, Ph.G.

In the June number of the American Journal of Pharmacy, while treating of syrup of the hypophosphites with iron, a short note was appended, relating to a ferrous syrup, which was stated to decompose rapidly, and future investigations were invited to stay the decomposition. The chemical nature of the products formed was not inquired into, partly due to lack of time, but a precipitate formed was believed to be ferric hypophosphite. Later examination proved this view, based upon a published statement, to be erroneous.

The ferrous hypophosphite was employed in solution, prepared by double decomposition between ferrous sulphate and calcium hypophosphite in molecular proportion. The resulting liquid, filtered from the precipitated calcium sulphate and subjected to various methods of exposure, always gradually precipitated. On closer examination the precipitate was found to be calcium sulphate, which is retained in the ferrous solution with great tenacity.

The precipitate, as well as the liquid portion, always gave negative results to ferric reagents, unless directly exposed to air for some time. The same was found to be the case with syrups, prepared by the formula given in the previous paper, which had been standing 8 weeks.

Various methods of separating the calcium sulphate, such as filtration through freshly precipitated barium sulphate or purified talcum, gave but partial results, enough $CaSO_4$ being retained,

always to interfere with the attempt to prepare a stable syrup. It not being possible to separate the $CaSO_4$ by filtration or other means, an excess of calcium hypophosphite was added to the ferrous solution, on which addition the greater portion of it is precipitated.

The following formula is based on this method:

Ferrous sulphate, crystallized,	64 grs.
Calcium hypophosphite,	40 grs.

Dissolve each separately in 12 drams of distilled water, mix, and allow the $CaSO_4$ to precipitate. Exposure to cold aids the precipitation. Filter, and to the filtrate add calcium hypophosphite 180 grs., aiding the solution of the salt by an addition of 5 grs. citric acid or 2 drams of 10 per cent. hypophosphorous acid.

Allow to stand from 12 to 24 hours, in which time the greatest portion of the calcium sulphate will precipitate, and add 60 grs. each of potassium and sodium hypophosphite. Filter, and in the filtrate dissolve 5 oz. avoir. of sugar, by agitation without heat.

By this method all but a slight amount of $CaSO_4$ is precipitated out, and merely slight traces are found in the finished syrup. An excess of acid is necessary to dissolve a small amount of ferric hydrate formed during the operation, due to impurities in the commercial calcium hypophosphite. If this addition be omitted, the syrup will gradually deposit a brown precipitate of ferric hydrate. When citric acid is employed, the finished syrup will be of a light green color, with gradual, very slight precipitation.

If, on the other hand, diluted hypophosphorous acid be substituted, the syrup will be colorless, very much of the appearance of the officinal syrup of the hypophosphites. As in the case of the ferric salt, ferrous hypophosphite turns bright green in the presence of soluble citrates. If an addition of an equal weight, corresponding to the amount of ferrous hypophosphite present, of potassium or sodium citrate be made to the syrup, a handsome bright green color is communicated to it.

This addition does not, however, increase the stability of the preparation.

Neither of the syrups, prepared in this manner, gives any indication of the presence of ferric iron. It may be fair to assume, that ferrous hypophosphite, in the form of a syrup, unless subjected to

direct exposure to air, is stable. The syrup, containing an excess of hypophosphorous acid, appears to be the most satisfactory, and may, perhaps, make a good substitute for the officinal Syrupus Hypophosphitum cum Ferro.

ABSTRACTS FROM THE FRENCH JOURNALS.

TRANSLATED FOR THE AMERICAN JOURNAL OF PHARMACY.

SALICYLATE OF BISMUTH.—M. Causse (*Comptes rend., Ac. des Sci.*, May 25), recommended the following mode of preparation: Dissolve 100 gm. of sub-nitrate of bismuth in concentrated hydrochloric acid. When the liquid becomes clear, it is poured into a litre of concentrated solution of sal ammoniac. To absorb the free acid, sub-nitrate of bismuth is slowly added so long as it will dissolve. A more rapid and complete result is obtained by neutralizing with ammonia dissolved in a saturated solution of sal ammoniac. The first portions of the alkali determine a precipitate which disappears in proportion as the liquor contains free acid. The neutral solution of bismuth is mixed with a solution of 120 gm. of salicylate of soda, made with 500 gm. of a saturated solution of sal ammoniac. A voluminous crystallization of salicylate of bismuth soon follows. The crystals are washed several times and dried at an ordinary temperature. These crystals are colorless and microscopic, resembling those of dehydrated sulphate of quinine. Cold water has no effect on this salt, but it is decomposed by boiling water, by alcohol and by heat. The salt is neutral, and contains 4 molecules of water of crystallization.

COMBRETUM RAIMBAULTII.—Dr. E. Heckel (*Répert. de Phar.*, June 10) describes the use of this plant in "bilious hematuric fever" as employed by the natives of Western Africa, between Rio-Numez and Sierra-Leone, under the name of *kinkeliba*. They make a decoction of 16 gm. of the powdered leaves to 1 litre of water, boiling the mixture for 15 minutes and then filtering. One tumblerful (250 gm.) is given at once; half this quantity is given ten minutes afterward, and a quarter of it ten minutes later. Vomiting supervenes, but soon ceases and does not recur. The patient continues to take the decoction whenever he is thirsty, for four days; but he should not ingest more than 1½ litre daily. Kinkeliba contains tannin (20·80 gm. per 100 gm.), and a quantity (not stated) of nitrate

of potassium. It acts as a tonic, diuretic and, at first, as an emetic. Cholagogue properties are attributed to it by the natives. Dr. Heckel found that it sometimes gave rise to a bilious diarrhœa.

QUININE FOR HYPODERMIC USE.—At the meeting of May 6th, of the Paris Society of Pharmacy, M. Vigier said that five per cent. solutions of lactate of quinine could not be made after this compound has once been dried. They should be made extemporaneously for this purpose. M. Barillé stated that M. Laveran no longer used lactate and hydrochlorate of quinine extemporaneously, but, taking advantage of the power of antipyrine in favoring the solubility of quinine, he used the following formula: Hydrochlorate of quinine, 1 gm.; antipyrine, 50 cgm.; water, 2 gm. The solutions are not painful to patients.

VALERIANATE of ANTIPYRINE and QUININE.—M. E. Sochaczewski (*Bull. Comm.*, June) gives the following as the best method of preparation: Dissolve 10 gm. of valerianate of quinine in a sufficient quantity of 90 per cent. alcohol to give a thoroughly saturated solution. Dissolve 10 gm. of antipyrine in the smallest possible quantity of distilled water. Mix the solutions in a crystallizing dish and apply heat, being careful that it does not go beyond 122°. The crystals form and no sub-product is obtained. Some of the crystals measure 6 centimetres in length.

NAPHTHOL-ANTIPYRINE.—M. G. Patein (*Répert. de Phar.*, June 10) has made this combination with α and β naphthol, the former being liquid and the latter crystallized. The preparation with β naphthol is made by dissolving 150 gm. of that substance in 90 per cent. alcohol, and pouring slowly into it, while stirring, a solution of 190 gm. of antipyrine in the smallest possible amount of water. A viscous mass forms in a few minutes. This must be vigorously stirred for 4 or 5 minutes, when the liquid will become perfectly clear. Pure, fine crystals of β naphthol-antipyrine are now deposited. By taking these up in warm 60 per cent. alcohol, large, colorless crystals are obtained. These melt at 82–83° C. [179°6–181°-4 F.]; they are soluble in alcohol and ether. By the addition of cold water the naphthol precipitates and the antipyrine remains in solution. Decomposition is prevented by making a solution as follows: β naphthol-antipyrine, 1 gm.; alcohol of 90 per cent., 25 gm.; distilled water, 40 gm.

CORONILLIN: A CHARACTERISTIC REACTION.—As described by

Schlagdenhauffen and Reeb (*Jour. de Phar. d'Als.-Lorr.*, June, 1891), this glucoside appears in amber colored plaques, very soluble in water, less soluble in alcohol, and of a very bitter taste. It cannot be obtained in crystals. It contains no nitrogen and appears to belong to the digitalin group. Like the latter, it is very toxic and a "heart poison;" it arrests that organ in systole. It is sensitive to sulphuric acid, with which it gives a brown coloration. But, as other organic substances give the same reaction, this acid can only be considered as sufficient to detect the presence of coronillin in alimentary substances. A characteristic reaction is the red coloration obtained by treatment with nitric acid to which cupric chloride has been added. With this, the quantity of ·00025 gm. may be detected.

THYMOLACETATE OF MERCURY.—Loewenthal's formula for intramuscular injections in syphilis was given (*Deut. Med. Woch.*) as follows: Thymolacetate of mercury, 1 gm.; glycerin, 10 gm.; hydrochlorate of cocaine, 10 cgm. Dr. Tranjen (*Répert. de Phar.*, June 10) is using this substance in the same way for tuberculosis, the formula being: Thymolacetate of mercury, 75 cgm.; liquid vaselin, 10 gm. The injection—which is not painful—is made every 8 or 10 days. After having given two or three injections, the doctor gives iodide of potassium internally. Its action is beneficial in proportion to the promptness with which it is used. It has no effect on the late period of the malady.

GLEANINGS FROM THE GERMAN JOURNALS.

BY FRANK X. MOERK, Ph.G.

Starch-formation from formaldehyde.—The formation of starch in plants, first explained by von Baeyer, was that from the carbonic oxide, there was formed formaldehyde CH_2O, which by polymerization formed starch. Th. Bokorny (*Berichte Deutsch. Bot. Ges.*, 1891, iv.) has now succeeded in establishing direct proof of this hypothesis; the use of formaldehyde itself is excluded because of its poisonous nature, but starting with sodium oxymethylsulphonate

$$CH_2{<}\begin{matrix}OH\\SO_3Na\end{matrix}$$

which by heat in aqueous solution is decomposed into formaldehyde and acid sulphite of sodium ($CH_2OHSO_3Na = CH_2O + NaHSO_3$)

the synthesis was effected. The solution of this salt answers as a nourishing medium for certain bacteria; to prevent the injurious action of the acid sulphite some di-potassium phosphate is added, which goes to form neutral sulphite and the mono-potassium phosphate. The nourishing medium employed was a solution containing calcium nitrate 0·1 per cent., potassium chloride 0·05 per cent., magnesium sulphate 0·02 per cent., mono-potassium phosphate 0·02 per cent. and ferric chloride a trace; to this was added sodium oxymethylsulphonate 0·1 per cent. and di-potassium phosphate 0·1 per cent. The plant used in the experiments was Spirogyra majuscula, *Ktz.;* if a number of these plants (containing little starch) were introduced into the nourishing medium, taking care to exclude even traces of carbon dioxide, it was noticed after five days that in all cases where the oxymethylsulphonate of sodium was added an enormous increase of starch resulted, whereas if this salt was not added, there was no starch, no growth, and, in a number of cases, the plants perished.

In these experiments success was only obtained on exposure to light. It was also found that in the absence of potassium salts the plants did not assimilate carbon dioxide. The nourishing medium made up without potassium salts but containing sodium oxymethylsulphonate favored the production of starch in the plants after three days; this last experiment is conclusive evidence that formaldehyde is immediately concerned in the formation of starch since in the absence of potassium salts carbon dioxide could not be assimilated. In the change of inorganic matter (CO_2) into organic matter formaldehyde ranks as the first organic matter.—*Pharm. Post,* 1891, 462.

Iodoform-odor.—To conceal the odor of iodoform, W. Pagenkopf recommends the addition of a little Russian turpentine oil; it is said to impart a peculiar, almost pleasant odor to iodoform preparations.—*Pharm. Ztschr. f. Russl.,* 1891, 391.

Alkaloids of the Amaryllidaceæ.—These plants, although poisonous, have not yet been chemically examined; two (Amaryllis formosissima and Amaryllis Belladonna) are cultivated in gardens, because of their beautiful flowers. The alkaloids were obtained by extracting the powdered bulbs with alcohol, distilling off the solvent, taking up with water, precipitating with sodium carbonate and dissolving the precipitate in ether. The alkaloid obtained on evaporation of the solvent was purified by solution in acidulated water, precipitating

and dissolving in ether or chloroform, finally, by crystallization from alcohol. *Amarylline* is the name proposed for the alkaloid from A. formosissima and *bellamarine* for that from A. Belladonna. Amarylline forms clusters of short needles, is slightly soluble in water, easily so in ether, chloroform and alcohol; melts at 196° C., apparently with slight decomposition; with the exception of platinic chloride, potassium bichromate and tannin, it yields precipitates with the alkaloidal reagents; with sulphuric acid it gives a red-brown color, which becomes green on addition of a few drops of water; mixed with sugar and then H_2SO_4 it gives a green, changing to yellow, color; with Froehde's reagent a brown-green, changing to dark green.

Bellamarine forms colorless needles, soluble in alcohol, ether and chloroform; it melts at 181° C. with darkening; it precipitates with all of the alkaloidal reagents; its most characteristic color reaction is with sulphuric acid, gray; upon warming a pretty red.—Dr. B. Fragner, *Pharm. Post*, 1891, 421.

Linimenta exsiccantia or drying liniments are intended as an improvement on the gelatin treatment in dermal practice. The base is made by either triturating in a mortar or heating in a suitable vessel 5 parts tragacanth, 2 parts glycerin and 100 parts water; made by the aid of heat the preparation keeps without the addition of antiseptics; the advantages of this base are that it can be applied in very thin layers, and can be removed by simply washing with water. To medicate the base, soluble substances are dissolved in the water used to make the base; insoluble substances, oils, iodoform, zinc oxide, etc., are triturated in a mortar with the previously-made base.—Prof. Ph. J. Pick (*Prag. Med. Wochenschr.*) *Pharm. Post*, 1891, 425.

Coffee adulteration.—A coffee was recently offered for sale in Amsterdam which, by its dark color, excited the suspicions of the purchaser. A microscopic examination revealed the structure of the true bean, but also the absence of fat globules; the ethereal extract left only about 1 per cent. residue, whereas, good coffee generally yields from 13–14 per cent.; it is, therefore, evident that this sample had been exhausted for the purpose of making coffee extract, and then roasted a second time after addition of a little sugar, this explaining the dark color and polish of the sample.—(*Int. Rev. f. Verfälsch.*) *Ztschr. f. Nahrungsm. Unters. u. Hyg.*, 1891, 82.

Artificial indigo.—The yield of indigo in the various syntheses has been so small that artificial indigo could not compete with the natural article. The best yield so far has been obtained by Heumann (AM. JOUR. PHARM., 1890, 614), about 15 per cent. Further investigations succeeded in considerably increasing the yield, so that it may now be possible for the artificial indigo to compete with the natural. The improvement of the process consists in treating phenylglycocoll with fuming sulphuric acid at low temperatures; at —5° C. the glycocoll dissolves very readily in fuming sulphuric acid, with a yellow color, which, on dilution with ordinary sulphuric acid, changes to the intense blue, characteristic of indigo; addition of sodium chloride to this solution precipitates the indigo-carmine.—Dr. A. Haas, *Südd. Apoth. Ztg.*, 1891, 172.

Gelatinizing of infusion of digitalis.—In the *Am. Jour. Pharm.*, 1890, 615, the results of some investigations are given, having for their object the conditions under which this infusion will gelatinize. Dr. W. Braeutigam has now succeeded by a bacteriological investigation in determining that a *bacillus* is the cause of the change; if a little of the culture be introduced into a sterilized infusion of digitalis, containing 5 per cent. of simple syrup, gelatinization will take place in about two days, depending somewhat upon the temperature; in the absence of the syrup, the infusion became *slimy* but never *gelatinous*. The cultures were made by using an infusion of digitalis containing 5 per cent. simple syrup and 6–8 per cent. gelatin as the nourishing medium; the cultures have a grayish appearance with pearly lustre; the bacillus develops in an alkaline or acid medium.—*Phar. Ztg.*, 1891, 349.

Eugenol-ethers.—*Benzoyl-eugenol* or *benzeugenol* $C_{10}H_{11}O.OC_7H_5O$ crystallizes in colorless, odorless, slightly bitter needles, neutral in reaction and melting at 70·5°C; almost insoluble in water, soluble in hot alcohol, chloroform, ether and acetone; with strong sulphuric acid a purplish-red coloration results.

Cinnamyl-eugenol $C_{10}H_{11}O.OC_9H_7O$ forms colorless, odorless, tasteless, lustrous needles, melting at 90–91°C., neutral in reaction; solubility and color reaction like the preceding. Both are easily saponified and then on addition of acid give the characteristic eugenol odor and separate the acid. J. D. Riedel of Berlin has applied for patents covering the manufacture of these compounds directly from the oil of cloves; they are to be used in pulmonary

affections acting in the same manner as benzosol and styracol (*Am. Jour. Pharm.*, 1890, 444 and 1891, 188).—Dr. H. Thoms, *Pharm. Centralhalle*, 1891, 365.

Metallic sodium.—To remove the black crust from the metal, Max Rosenfeld places the metal in a mixture of 1 part amyl alcohol and 3 parts petroleum, rubbing with a cloth thoroughly saturated with this liquid until the metal becomes silvery white in color, then it is placed for a short time in petroleum containing 5 per cent. amyl-alcohol, washed with petroleum and, lastly, kept in a vessel containing petroleum with 0·5 to 1 per cent. amyl alcohol. Sodium by this treatment takes a beautiful metallic lustre and shows crystalline figures on the surface; after prolonged keeping in the last-named liquid a yellow film may coat the metal, but this can be removed simply by rubbing with filter-paper. Potassium and lithium may be purified in the same way.—(*Ber. d. D. Chem. Ges.*) *Pharm. Centralhalle*, 1891, 395.

Oil of lemon by fractional distillation yields three well-defined fractions:

(1) 170–170·5° C., forming a colorless, mobile liquid, sp. gr. 0·8867 and having a very fine lemon odor; it consists of limonene $C_{10}H_{16}$, forming the tetrabromide melting at 31° C.; also the dichlorhydrate $C_{10}H_{18}Cl_2$ crystallizing in colorless hexagonal plates and melting at 50° C.; (2) 176–178° C., this is present to the extent of 90 per cent. in the oil, has the sp. gr. 0·899, has the same formula and molecular weight as limonene, but forms a tetrabromide melting at 102–103° C.; (3) 240–242° C. This is composed principally of sesqui-terpene $C_{15}H_{24}$, has the sp. gr. 0·9847 and is optically inactive differing from the other two fractions. Oil of lemon is dextrogyre according to age it may vary from 117 to 123° using a 200 mm. tube; on an average 120° will be found. Adulterations with turpentine oil may be detected by the polariscope; French turpentine oil shows a rotation of −55°; American and Russian oils +12° to +14°, thus the presence of these adulterants will decrease the rotatory power of the oil.—V. Oliveri, *Apoth. Ztg.*, 1891, 341.

Test for acetone.—The test depends upon the formation of iodoform from acetone and iodine in the presence of ammonia; it is of especial value since alcohol in the presence of ammonia does not form iodoform. It is carried out by adding to a little of the solution to be tested a few drops of strong ammonia water and then 1–2

drops of $\frac{n}{10}$ iodine solution; there may be produced at this stage a dark turbidity due to nitrogen iodide which will disappear upon agitation or warming (if not too little acetone is present) and show the yellowish turbidity due to iodoform; more iodine solution can then be added until the nitrogen iodide ceases to disappear; and this accomplished by the cautious addition of a dilute solution of sodium thiosulphate, all of the acetone is made to react with the production of iodoform. The odor of the latter is not affected by the presence of the ammonia. The reaction is quite delicate, 1 part acetone in 5,000 parts water giving the precipitate in a few minutes; the test is considered a good one for the detection of acetone in urine. It is thought that all bodies containing the group $CH_3.CO$ — will give the reaction.—Prof. A. Schwicker, *Chemiker Ztg.*, 1891, 914.

Test for guaiacol.—The addition of concentrated sulphuric acid and a minute quantity of acetone to guaiacol or its compounds (benzosol, etc.) produces a beautiful cherry-red or purplish-red coloration; the addition of two volumes of chloroform to the test and agitation makes the color more pronounced.—Dr. J. Bongartz, *Pharm. Ztg.*, 1891, 370.

Salicyl-bromanilide, also called *antinervine*, claimed to be a combination of salicylanilide and bromacetanilide (*Am. Journ. Pharm.* 1891, 345) has been examined at various times by Dr. Ritsert and always found to be composed as follows: 25 parts ammonium bromide, 25 parts salicylic acid and 50 parts acetanilide. An interesting point was brought out during the examination: The mixture melted between 80 and 90° C.; after removing the salicylic acid and acetanilide with chloroform and evaporating, the residue was found to melt at 82–84° C.; mixtures made of salicylic acid and acetanilide in varying proportions always melted between 80 and 90°. Another interesting observation was that acetanilide crystallized from petroleum-ether in needles.—*Pharm. Ztg.*, 1891, 393.

Dermatol.—B. Fischer publishes the following method of preparation, as it is stated that the process by which it is made by Meister, Lucius and Brüning is to be patented: 15 parts bismuth subnitrate are dissolved in 30 parts glacial acetic acid, 200–250 parts water added and filtered, to this solution is added, with constant stirring a warm solution of 5 parts gallic acid in 200–250 parts water. The precipitate is first washed by decantation, then on a filter until the

washings are free from nitric acid; lastly, it is dried at 100° C. The saffron yellow powder should not yield anything to alcohol (absence of gallic acid) and should yield not less than 55 per cent. bismuth oxide (theory demands 56·66 per cent.).—*Pharm. Ztg.*, 1891, 400.

Gymnemic acid.—To isolate this acid the finely powdered plant (Gymnema silvestris) is moistened with a small quantity of 20 per cent. soda solution, allowed to stand 48 hours and extracted for 24 hours with benzin; the benzin is distilled off, the residue repeatedly washed with ether and dried. The impure acid so obtained forms a brownish crystalline powder, very soluble in alcohol, in 100 parts water, insoluble in ether, chloroform and carbon bisulphide; acids decompose it; it forms salts which are not soluble in water. In larger doses, 0·3–0·4, it is emetic; in very small quantities it is very effective in disguising bitter tasting medicines. For this purpose it is recommended to use an one-half per cent. aqueous solution, to which is added a small quantity of alcohol for rinsing the mouth before taking the medicine.—A. Quirini (*Gyogysz. Hetilap.*) *Pharm. Ztg.*, 1891, 401.

METALLIC DERIVATIVES OF CUPREINE.[1]

By A. C. Oudemans, Jr.

The sodium and potassium compounds of cupreine separate as crystalline scales when a solution of the alkaloid in slight excess of the corresponding hydroxide is subjected to cold. The separated scales are dried by a filter pump, washed rapidly with strong alcohol, and placed in a desiccator over potassium hydroxide for some time. *Potassium cupreine*, $C_{19}H_{21}KN_2O_2 + 8H_2O$, forms acicular crystals or hexagonal scales. *Sodium cupreine*, $C_{19}H_{21}NaN_2O_2 + 5H_2O$ and $+ 8H_2O$, forms large scales which are greasy to the touch. The potassium compound appears to be more soluble in mixtures of aqueous and alcoholic alkalies than the sodium derivative.

In contradistinction to Hesse, who denied the existence of an ammonium derivative of cupreine, the author states that the alkaloid dissolves easily in concentrated ammonia solution, to a smaller extent in weaker solutions, and inasmuch as the specific rotatory power of such solutions is similar to that of like solutions of the sodium derivative, he concludes that an ammonium compound does

[1] *Rec. Trav. Chim.*, **9**, 171–183; reprinted from *Jour. Chem. Soc.*, 1891, 471.

exist. Solutions of lithium hydroxide and of barium hydroxides also dissolve cupreine. All the metallic derivatives of cupreine assume an orange or brick-red color after prolonged drying or on heating above 120°.

Hesse having proved that cupreine behaved as a phenol in which hydrogen may be displaced by a metal, the author has investigated the influence such replacement has on the specific rotatory power of the alkaloid, in order to determine if the alkaloid and the base combined molecule for molecule, in which case an excess of base ought not to affect the specific rotatory power to any great extent, and he publishes very complete tables of the specific rotatory power of the alkaloid in both aqueous and alcoholic solutions of potassium and sodium hydroxides, in aqueous solutions of lithium and barium hydroxides, and in ammonia solution

The results of the observations are as follows: (1) Approximately the same values obtain for the sp. rot. power of cupreine for similar concentrations of alkaloid and either potassium, sodium, lithium, and barium hydroxides in aqueous solution, but in the case of the ammoniacal solution the rotatory power has a higher value, and differs in the values obtained from its solution in fixed alkalies in the fact that an increased strength of ammonia solution augments the sp. rot. power. (2) The sp. rot. power of the alkaloid diminishes inversely with the amount present in the alkaline solution, and also with the amount of alkaline hydroxide present. (3) The highest values for the sp. rot. power are obtained when the amounts of alkaloid and of hydroxide associated are approximately those represented by their molecular weights; in this respect cupreine is analogous to quinamine and conquinamine in acid solution. It is to be noted that the values obtained in alkaline alcoholic solution are much higher than those in aqueous solution, and that in this case additional alkali increases the rotatory values.

The mean rotatory power for 1 mol. (in milligrams) of cupreine in 20 cc. of water with 1–2 mols. (in milligrams) of alkaline hydroxide is about —205°.

Camphoric acid has been used by Dr. Combemale (*Jour. de Méd.*, March 1, 1891; see also Amer. Jour. Phar., 1890, p. 462) as an antidiaphoretic, which will diminish, almost with certainty, the exaggerated functional action of the sweat-glands, and has not the great disadvantage of atropine of causing phenomena of delirium, nor, like agaric, does it produce free purgation.

THE CULTIVATION OF GINSENG.[1]

Ginseng is indigenous to the greater part of the cooler regions of the United States. In Georgia and Alabama it is found in the mountains and thence northward along the elevated plateaus, gradually descending to near the sea level in some of our Northern States. It appears to thrive best in loamy soils, such as are usually found in sugar maple and oak forests at the North. Shade seems also to be essential, for when the plants are exposed to the direct rays of the sun they soon die out, and for this reason open field or garden cultivation of the plants has rarely or never been attended with success. The proper way to start a plantation is to select a piece of land at the edge of some forest where the plants are found growing wild; then clear out all the underbrush and small trees, leaving just enough of the larger ones to afford the shade required. This should be done in spring or during the summer. Then break up the surface of the soil with a harrow, steel rakes, hoes or other implements to the depth of two or three inches, removing all weeds, grasses, and their roots. The bed thus prepared will be ready for the reception of seeds and small unsalable roots as collected in the autumn, the season of ripening depending somewhat upon latitude.

Ginseng berries are of a crimson color when ripe, each containing two seeds, produced in small clusters at the top of a central peduncle elevated above the principal leaves. When gathering the seed, the roots may also be dug up, and all small and unsalable ones preserved and replanted in the prepared bed. The seed should be rubbed from the pulp very carefully with the hand, and then sown, or better, pressed into the ground with the finger about half an inch deep, and one every six inches along the row. The rows should be from one to two feet apart for convenience in removing weeds, should any appear. Both seeds and plants should be in the ground before hard frosts occur in autumn, for when these come, the leaves of the large trees will fall on the bed and give the natural protection required.

The following season no cultivation will be needed—if the bed is thinly covered with leaves—except to cut out sprouts and remove

[1] Having had several inquiries concerning the culture of ginseng on a somewhat extensive scale, we copy from a paper in the *American Agriculturist* that portion relating to this subject.—Editor.

any large, coarse weeds which may spring up from seeds or roots left in the ground. If winds blow away the leaves needed as a mulch, a few old dead branches of trees may be scattered about to hold the mulch in place. At the end of the third season the roots will have reached a remarkable size, and may then be dug, and the same bed worked over and restocked with seeds or small plants.

Some who have tried it say that raising ginseng can be made profitable where a man has suitable land in the forest or a grove near at hand. The cost of preparing a bed cannot be very much, and the seed can be obtained from the wild plants in our forests.

ACTION OF LEECH EXTRACT ON BLOOD.[1]

By W. L. Dickinson.

The general properties of the extract of the anterior part of the dicinal leech which, as Haycraft showed (see *Am. Jour. Pharm.*, 1886, p. 272), possesses a strong anti-clotting action on blood, are the following: It is neutral to litmus paper; its specific gravity is not appreciably higher than that of the medium used for extraction. Boiling causes no precipitate, and no loss of activity. Alkalies cause no precipitate. A trace of acetic acid causes cloudiness readily soluble in excess. Strong acetic acid causes no precipitate in salt free, but a copious cloud in salt-saturated extracts. Nitric acid in the cold causes a precipitate soluble on boiling, and reappearing on cooling. Saturation with ammonium sulphate causes a precipitate, after which no proteid remains in solution; saturation with magnesium sulphate or sodium chloride, on the other hand, causes no precipitate. If all salts are removed from the extract by dialysis, there is no precipitate produced, and no loss of power. Copper sulphate, lead acetate, and mercuric chloride give precipitates insoluble in excess of the reagents. Copper sulphate and potash give a pink (biuret) reaction. Alcohol causes no loss of the activity of the extract.

The leech extract, therefore, contains a proteid having some features in common with Kühne's proto-, and others with deutero-albumose. The albumose precipitated by ammonium sulphate has all the anti-clotting power of the original extract; the extract *minus* the albumose has no such powers. Hence, probably the albumose is itself the active principle.

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[1] *J. Physiol.*, **11**, 566–572, *Jour. Chem. Soc.*, 1891, 482.

Clotting in plasma obtained from blood, prevented from coagulating by admixture with leech extract (either intravenously or after it is shed), cannot be induced by carbonic anhydride or by dilute acetic acid; it can, however, always be induced by a sufficient quantity of fibrin ferment. Such plasma gives no precipitate on cooling.

Fibrin soaked in leech extract fails to yield ferment when subsequently treated with 8 per cent. sodium chloride solution. The extract, however, still contains cell-globulin. Cell-globulin prepared from lymphatic glands by Halliburton's method (1888) retains all its properties, except its fibrinoplastic power, when treated with leech extract. This is regarded as an argument in favor of the non-identity of the cell-globulin and fibrin ferment.

FANCIFUL ANIMAL REMEDIES IN PHARMACY.

By P. L. Simmonds, F.L.S.

In the present day Hygeia entrusts her reputation, and the safety of invalids, chiefly to vegetable and mineral substances. But it has been well observed if science is reserved in the employment of animal substances in the Pharmacopœia, ignorance and credulity have given full flight to their fancy in many countries. "Fools have rushed in where angels feared to tread." Especially is this the case in the Chinese Empire, where animal substances enter extensively into the remedies of the doctor. The following are reliable statements, published in connection with the pharmaceutical collections shown by the Chinese Imperial Maritime Customs at different International Exhibitions.

The gall bladder of the *bear* is prescribed for affections of the liver and ophthalmia. They fetch about $2.50 each. The *cow bezoar* is considered a sedative and tonic, and *cow's gall* expectorant. *Glue* made from asses' hides is a tonic for the liver and kidneys, and stimulant. Glue from tigers' bones is also tonic, that made from buffalo hides is considered sedative.

Musk is used as a stimulating and antispasmodic medicine, and pills made of musk and Barus camphor, etc., covered with wax, are considered sedative and mildly expectorant. Portions of a *tiger's skull* are administered in typhoid fever, ague and rheumatic headache, and are also given to a person who has been bitten by a mad dog to prevent hydrophobia.

The horns of a small species of *antelope* are given as a cooling medicine, and supposed to cure inflammation of the lungs and liver. They range from 80 cents each to $180 a picul or 1¼ cwt. A *gelatin* made by boiling down young deer horns is given as a tonic, but this costs $500 the picul. In some years 600 pairs of these horns are secured. The horns broken and boiled to the consistency of jelly are also given as a stimulant in nervous ailments, for spermatorrhœa and leucorrhœa. The horns sell at $5 a pair.

A decoction of the shavings of *rhinoceros horns* is taken in fever, small-pox, ophthalmia, hæmoptysis, etc. These horns of the Sumatran and Siamese

rhinoceros, imported from Signapore, cost $24 per horn. But it is not only the quadrupeds which are utilized in Chinese pharmacy, the bimana also contribute their quota in the genus homo.

Dried human *placenta* is considered tonic in consumption, and can be bought at $2.50 each.

Dried human *urine* is given in pulmonary complaints, and is believed to possess demulcent properties. Taken internally it is supposed to cure debility and as a lotion is good for weak or sore eyes. Eggs boiled in boys' urine are also considered very strengthening. Dried urine seems to be cheap, since it only fetches $7 a picul. Another prescription is boys' urine, gypsum and dew mixed, and stirred with a piece of mulberry wood. This process is gone through several times. The resulting deposit is put on paper, with lime underneath, and dried in the sun. It is then powdered, put into a small pot with water and evaporated to dryness. It is given in phthisis, gonorrhœa and spermatorrhœa, and also used as salt with rice! The price is 20 cents a catty or pound.

What is known as a "medicine stone," is a stone roasted and afterwards put into the urine of a child. After having gone through the process seven times, the stone is dried and powdered, and the powder is applied to ulcers and opacities of the cornea. This medicine stone costs $3.20 per catty or pound.

The skin of the common hedgehog is sold for 50 cents and decocted for pulmonary complaints and made into pills for cutaneous diseases.

The sea-horse (*Hippocampus*), used as a stimulant, fetches $200 to $500 the picul.

The lining membrane of the *gizzard* of the common fowl, peeled off and dried, is sold at $38 to $47 the picul. It is prescribed in dyspepsia, diarrhœa, spermatorrhœa and urinary disorders. That of the male bird is used for preparing the drug for female patients and vice versa.

Snakes and reptiles play a prominent part in medicine in China. Dried lizards are sold at 10 cents the pair.

Snake skin is administered for small-pox and used as a carminative. The skins cost $1.20 each. They are also believed to relieve itching in skin diseases and applied to piles and fistula. Salted *scorpions* are given in small-pox. The price of these is $45 per picul.

A tincture of scorpions, much vaunted for its miraculous effects, is given as a diaphoretic for rheumatism, paralysis and ague. The price is a dollar a pound for the salted scorpions. Dried *toads* are tonic and sudorific, but they can be had as cheap as 2 cents each.

The under shell of the *land turtle* being considered strengthening and stimulant, is administered in decoction to the old and weak. Made into glue, it is given as a tonic, and sells at $400 the picul of 1¼ cwt.

The scales of the *amadillo* are administered for cutaneous diseases, and are worth $75 to $90 the picul. The scales of the *ant-eater* are used in rheumatism and to hasten eruption in small-pox. They sell at a dollar and a half a pound.

Leeches are not used alive, but a decoction, either in water or spirit, of dried leeches is taken as a purgative, and is applied outwardly to bruises, etc. Reduced to powder in spirit it is given in abdominal tumors, etc. They fetch $10 a picul.

Edible birds' nests are, of course, in high repute as aphrodisiacs, but they are more food articles than medicines.

The shells of the mollusca are used medicinally, thus *clam shells* are cathartic; *oyster shells* administered for deafness. *Fossilized shells* are used as a powder in ophthalmia and in scabies; internally in fever and in syphilis. *Coral* is also applied in powder to opacities of the cornea, and as an astringent for epitaxis.

Seed Pearls are prescribed in affections of the heart and liver; in the form of a powder to ulcers, and opacities in the cornea; in deafness it is put into the interior of the ear, and is applied to pustules of small-pox. This remedy is, however, dear, being quoted at $160 the catty or pound.

Petrified crabs are applied to boils and sores, etc. Fragments of these fossil crabs crushed, powdered and finely levigated are used in opacities and other affections of the eyes, and sell at from $30 to $300 a picul in different localities.

If we pass to the lower order of insects, we find the skins of the *dung beetle* fetch £3 the cwt., for medicine. The flesh flies (*Musca carnivora*) collected on putrid carcases are torrefied and employed as drugs. *Maggots* are prescribed in the delirium of fever and dysentery. *Silk-worms* in cystitis; after being burnt the ash is mixed with wine and drunk, in order to cause the bursting of abscesses.

The larva of the *grasshopper*, torrefied and pulverized, made into pills, are considered anthelmintic and given to children in fevers.

Wood bugs (*Cimex*) are also torrefied and given as medicine. The bodies of *Cicada sanguinolinta*, with the wings and feet taken off, are considered a cure in hydrophobia.

Caterpillars are considered good for bronchial complaints; are given as a purgative and antispasmodic, and are apparently cheap, selling at $6 the picul. The cocoons of a caterpillar are applied in inflammation of the eyes.

A decoction of *centipedes* is used in gonorrhœa; powdered they are applied externally to venereal sores, but it costs $150 a picul.

Cantharides are used in hydrophobia.

Cuttle-fish bone, mixed with native wine, is given for cancer.

A species of green *mantis* and its nests are used in cases of incontinence of urine and spermatorrhœa. The *cricket* forms the basis of a medicine to throw out splinters which have entered into the skin. It is considered anti-hydropic. Three or four such crickets are administered in a wineglassful of Chinese rice wine. The drone or *wasp* is used in cases of bites by spiders, ulcers and leucorrhœa. It is said also to cure toothache.

But while we may smile at most of these Chinese remedies, it should be borne in mind that as great ignorance prevailed, and as much prejudice existed among ourselves in times not long passed, before chemical knowledge and scientific discoveries had made such rapid strides.

Take for instance the following asserted facts:

Had one of our ancestors a distressing toothache, there were ready at hand the *weevil* and the *lady-bird*, either of which would be crushed and applied to the afflicted part. Nay, did he wish to get rid of the offending organ altogether, he had but to touch it with the ashes of burnt "emmets or pismires," and straightway the tooth would drop from the gum. Had he the misfortune to sprain his leg or bruise his foot? Two at least of the beetles which dwell in

the excrementitious matter, *Geotrupes* and *Aphodius*, were specifics held in high estimation. The yellow matter which exudes from the joints of the oil beetle was held to be as efficacious in dropsy or rheumatism as in hydrophobia, and no doubt was so. Another infallible remedy against the bite of a mad dog consisted of the fat white *maggots* generated in the putrid carcase of the dog itself. Truly a case of homœopathy run mad! That foul disease, leprosy, could not stand before the bruised body of a *meal-worm*. The great jaws of the *stag-beetle* when powdered, we are told, proved a certain cure in most of the maladies incidental to childhood. The different *tree bugs* were good against ague; the male cricket taken internally could drive away a cold. Was the cold accompanied by headache? There were plenty of remedies at hand, such as *earwigs* and *cockroaches*. This last insect was especially valuable, for according to Dioscorides (whose receipt was unhesitatingly reproduced by Mouffié in the 17th century), the fat of the cockroach, pounded with oil of roses, was singularly efficacious in earache, and the same insect boiled in oil removed warts. Snake poison, too, was rendered perfectly harmless, if the patient could be induced to swallow one or two *bed-bugs!*

There was a time when three *gnats* were taken as a dose, just as three grains of calomel might be taken now; while three drops of *lady-bird's milk* were formerly prescribed as seriously as a small dose of some fashionable medicine at the present day.

It is even still alleged that the little insect known as the *golden cetonia*, found in considerable numbers on rose trees, when pounded to a powder and administered internally, produces in the person a sound sleep, which lasts sometimes thirty-six hours, and which has the effect, in many cases, of nullifying hydropic symptoms.

A kind of paste made from the cockroach, administered internally, was found one of the most powerful antispasmodics known, and particularly useful, when diluted with water, in the case of lock-jaw.

Considering the number of species (at least 150,000) and the varied properties they possess, it is astonishing how few insects have been pressed into man's service, either for curative or culinary purposes.

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

The Brooklyn College of Pharmacy was organized June 9th last, and will commence its lecture course next October. The faculty is constituted as follows: R. G. Eccles, M. D., professor of materia medica, W. P. De Forest, Ph.G., professor of general pharmacy, L. F. Stevens, Ph.G., professor of special pharmacy, and G. C. Diekman, Ph.G., M. D., professor of chemistry.

The School of Pharmacy of the University of Michigan held its 23d annual commencement on June 25th, when thirty candidates received the degree of Pharmaceutical Chemist, one became Master in Pharmacy, and seven Bachelors of Science in Chemistry. In addition to these the honorary degree of Master of Pharmacy was conferred upon Giles Lewis, who, in 1867, received from this University a certificate of proficiency for chemical and pharmaceutical work.

The Massachusetts State Pharmaceutical Association met at its tenth annual convention at Nantasket Beach, June 23; president Marshall in the chair.

Aside from the customary routine business, the cut-rate problem was discussed with the result that the plan adopted at New Orleans was approved. Three papers were read, on syrup of tolu by J. G. Kilbourne, on assay of nux vomica, by W. L. Scoville, and on trade problems, by Prof. Bedford. The officers elected for the ensuing year are H. M. Whitney, Lawrence, president; M. L. H. Leavitt, Boston, secretary; and T. B. Nichols, Salem, treasurer. The time and place for holding the next meeting will be announced by the executive committee.

The Nebraska State Pharmaceutical Association had its tenth annual meeting at Beatrice, May 26, president Daubach in the chair. G. J. Evans, Hastings, was elected president; Julia M. Crissey, Omaha, secretary; J. Forsyth, Omaha, treasurer, and F. S. Hazard, Grand Island, local secretary. The next meeting will convene in the last-named place, June 7, 1892.

The Oregon Pharmaceutical Association, which was organized a year ago, (see Am. Jour. Phar., 1890, p. 429), held its first annual meeting June 10, in the city of Portland, when papers were read on oil of wintergreen by A. Wilson, on petroleum ointments by E. D. Oesch, and on disinfecting fluids by O. Bierbach. G. C. Blakely, The Dalles, was elected president; C. E. Bailey, Forest Grove, secretary, and O. P. S. Plummer, Portland, treasurer. The next meeting will again be held in Portland in June, 1892.

The Tennessee State Druggists' Association convened at its sixth annual meeting, May 20, at Knoxville, president Yeager occupying the chair. Trade interests and the causes of the failure of the passage of the pharmacy bill furnished the chief topics for discussion. Prof. Ruddiman read a paper on galenical preparations of deficient strength. The executive officers were re-elected for the current year and the date of the next meeting was fixed for May 18, 1892.

The Western Interstate Associated Pharmacists is the title of a new organization formed at Excelsior Springs, Mo., June 11. It is to consist of delegates appointed by the State Associations of Arkansas, Colorado, Illinois, Iowa, Kansas, Missouri, Nebraska and Texas; the object is the improvement of the professional and trade interests of these State associations; each state is entitled to ten delegates, but only to one vote; a quorum is to consist of three members. Provision has been made for standing committees on Registration, Legislation, Formulary, Improvement, and Retail Interests, and this seems to be the sphere in which this interstate association expects to exert its influence. President for the year is Rob. J. Brown, Leavenworth, Kan., and G. H. Willett, Kansas City, Mo., is secretary. The association will meet again at Excelsior Springs, Mo., in June, 1892.

Proceedings of the Connecticut Pharmaceutical Association, at the 15th annual meeting. 8vo, pp. 124. For a brief account of the transactions see July number, p. 369. D. G. Stoughton, Hartford, is local secretary for the next meeting, to convene February 2, 1892.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Falsifications et autres Défectuosités des principaux Médicaments Simples; par Nt. Gille, Pharmacien, Professeur émérite, etc. Deuxième édition, revue et augmentée avec la collaboration de Eug. Gille, Pharmacien, etc. Bruxelles: Imprimerie Charles Vande Weghe. 1891. 12mo, pp. xxxii and 409.

Falsifications and other imperfections of the principal simple medicaments.

Although this little work is primarily intended for the use of students with the view of familiarizing them with the methods for recognizing and establishing the purity of drugs and chemicals and the nature of impurities that may be present, the book affords also valuable information and many practical hints to those who are already accustomed to such investigations. In an introductory chapter the author discusses in a general way the causes of impurities, the nature of falsifications, and the manner of detecting them and guarding against them. The work proper is divided into three parts, the first of which treats of inorganic drugs, divided into simple and compound bodies, and further arranged into convenient groups according to chemical or physical qualities. The second part treats of organico-inorganic drugs, comprising salts of an organic acid with an inorganic fixed base; salts of an organic base with a mineral acid, and non-saline fossil and allied compounds, like petroleum, paraffin, amber, etc. The third part, relating to organic drugs, occupies more than one-half of the work, and is divided into three sections, chemical compounds, organic products of a complex composition (gums, resins, fats, etc.), and plants and plant organs. The individual drugs are not described, but strictly in accordance with the aim of the work only the possible impurities and the occasional adulterations and substitutions are enumerated and the manner of their detection indicated. This detection is effected, wherever possible, by chemical means, but for drugs consisting of plants or plant organs, the botanical and physical characters are mainly dwelled upon, however, to the exclusion of the structural characteristics, the determination of which belongs to a different course of study. In an appendix the author gives several chemical tables useful for investigations like those treated of in the work, and the Belgian laws against falsifications. The work is thoroughly practical and gives evidence that it has been written by a close observer and an experienced teacher.

Monograph on flavoring Extracts, with Essences, Syrups and Colorings; also formulas for their preparation. With appendix. For the use of druggists. By Joseph Harrop, Ph.G. Columbus, O. Harrop & Co. 1891. 12mo. Pp. 162. Price, cloth, interleaved, $2.

The title of this little work sufficiently explains its scope, and since its author has been engaged for some years in the manufacture of such preparations, he was enabled to offer a work of practical usefulness, containing original formulas and others compiled from various sources, presumably after having verified their worth. In six chapters are discussed the articles used; the manufacture of flavoring extracts; artificial flavoring essences; syrups; colorings, and finally in the appendix, various preparations mostly connected with the soda water trade. The practical utility of the work will secure for it many interested readers. As it is interleaved, observations can be noted in suitable places for future reference.

Arzneimittel welche in dem Arzneibuch für das Deutsche Reich, Dritte Ausgabe (Pharmacopœa Germanica, editio III), *nicht enthalten sind.* Bearbeitet und herausgegeben von dem Deutschen Apotheker-Verein. Berlin. 1891. Selbstverlag des Deutschen Apotheker-Vereins. 8vo. Pp. 320.

Medicaments which are not contained in the German Pharmacopœia, third edition.

A pharmacopœia naturally does not contain all the drugs and preparations which are employed as medicines, but only such which, on account of their general use or their efficiency, have attained a certain prominence over others. Medicaments not thus officially recognized are, however, more or less prescribed by physicians, and in order to obtain the desirable uniformity also in non-pharmacopœial medicines, the Pharmaceutical Associations of several countries have found it necessary to issue what may be considered *Supplements* to their pharmacopœias. In such a manner originated the "National Formulary" as a supplement to the pharmacopœia of the United States; and the work now before us is an analogous supplement to the recently issued German pharmacopœia. It is printed in the German language, and has been prepared in a style similar to that of the pharmacopœia, by a special commission of the German Apothecaries' Association charged with pharmacopœial labors. The number of medicaments in this work is 811; but of these a large number are either chemical compounds, or crude drugs of vegetable or animal origin. Among the former may be mentioned crude hydrochloric acid, oxalic acid, stearic acid, some ammonium salts (benzoate, iodide, nitrate, oxalate and phosphate), salts of quinine, morphine, barium, lithium, etc., alkaloids (aconitine, atropine, hydrastine, eseridine, etc.), other proximate principles (amygdalin, cumarin, cantharidin, kosin, papayotin, etc.), synthetic chemicals (iodol, methacetin, orexin, thiol, saccharin, etc.). Among the crude drugs alluded to are found cochineal, castoreum, cuttle-fish, various roots, rhizomes, leaves, flowers, fruits, seeds, resins, six wines of different origin, etc. It will be observed that the work is far more comprehensive, than those issued in this country and in Great Britain, both of which confine themselves to formulas for medicinal preparations of various kinds, a course which appears to us to be preferable to the one adopted in the work just described. The articles are alphabetically arranged by their Latin titles, which are followed by the German synonyms; a table is appended giving the usual maximal doses of the more active medicaments; and two other tables contain the names of poisonous articles which are recommended to be kept under lock and key, and others which are less dangerous, but are recommended to be kept separate from the non-poisonous medicaments. Among the numerous formulas we find many which are apparently little used in this country. The work is handsomely gotten up; the types are clear, and the text is well displayed.

A Course of Home Study for Pharmacists; first lessons in the study of Pharmacy. By Oscar Oldberg, P.D., Professor of Pharmacy, etc. With 150 illustrations. Chicago: Published by the Apothecaries' Company. 8vo. Pp. XIV and 523.

The author presents here, in a compact form, the outlines of the sciences related to applied pharmacy (botany is excepted) in such a manner as to be adapted for home study. In Part I the elements of pharmaceutical physics

are taken up; Part II treats of chemistry, and the following two parts of materia medica and of pharmacy. It is obvious that, in the limited space at hand, it is absolutely impossible to enter into details, and the statements had, therefore, to be made in as concise a form as the nature of each subject would admit. As a rule, the author has well succeeded in compressing definitions into a few words without sacrificing clearness, and the deductions are generally drawn in such a clear and convincing manner as to be easily grasped by the student. In the materia medica descriptions, we think that the most important characteristics deserve to be more prominently pointed out. The work will, doubtless, be of much utility and help to those who are endeavoring to acquaint themselves with the rudiments of science before entering a college in pursuance of their studies, or who may not be able to seek instruction outside of that obtainable in active business. The latter will find in the book a useful guide for intelligently comprehending the material and the processes in daily use. In the preface the author gives some timely advice in regard to the object of study, and, while the baneful influence of the habit which considers memorizing as equivalent to study, should be denounced on all suitable occasions, we quote with pleasure the following, as bearing on this question: "To the student I wish to say that the mere memorization of facts and theories, however valuable these may be when properly used, should, by no means, be your main object. It should be your constant aim to clearly understand what you read, to develop your faculties of observation and reasoning, and to be able to rightly use what you learn. Only by using it and adding to it can you make it your own."

Pharmacographia Indica.—A History of the principal Drugs of Vegetable Origin met with in India. By Wm. Dymock, Brigade-Surgeon, retired, etc.; C. J. H. Warden, Surgeon-Major, Bengal Army, etc.; and D. Hooper, Quinologist, etc. London: Kegan Paul, Trench, Trübner & Co. 1891.

Part IV of this work, now before us, completes its second volume, and besides several orders of minor importance treats of the drugs procured from the orders of Sapotaceæ, Styraceæ, Apocynaceæ, Asclepiadeæ, Loganiaceæ, Gentianaceæ, Convolvulaceæ and Solanaceæ. This part is characterized by all the excellencies upon which we have commented in connection with the preceding parts on their publication. Among the plants a number are noticed which are either indigenous or spontaneous in North America, like chicory, taraxacum, Sonchus oleraceus, Anagallis arvensis, dulcamara, stramonium, etc.; while others are cultivated either for ornament or other purposes, like Tagetes erecta, calendula, jessamine, oleander, Ipomæa Bona-nox, capsicum, tobacco and others. Far more numerous are those plants which are either indigenous to India or have become naturalized there from other tropical countries.

Contributions from the U. S. National Herbarium. Published by authority of the Secretary of Agriculture.

The fourth number of vol. 1 of these "Contributions" contains a list of plants collected by Dr. E. Palmer in 1890 in Western Mexico and Arizona, embracing a number of new species of which eleven are represented upon well-executed plates.

Volume II will bring a manual of the phanerogams and pteridophites of Western Texas, from the pen of Professor John M. Coulter. The first part, which has just been issued, describes the polypetalous dicotyledons upon 152 pages, and makes known several new species. We are pleased to note in this issue the practical application of the metric system, all the measurements being given in m., dm., cm. and mm. This work will supply a want which has been felt for a long time; that this want is being filled by Professor Coulter will be hailed with pleasure by all interested.

The Pathology of Actinomycosis in Man and Animals. With record of cases and experiments. By Geo. A. Bodamer, M.D., B.S., etc. 8vo. Pp. 40.

A reprint from the Transactions of the Pathological Society of Philadelphia, 1891.

Modern Antipyretics; their Action in Health and Disease. By Isaac Ott, M.D., etc. Easton, Pa. E. D. Vogel. 1891. 8vo. Pp. 52.

This little volume treats of the physiological and pathological action and of the therapeutic uses of the class of compounds mentioned in the title; a brief account is also given of the chemistry of pyridine, hydroquinone, antipyrine, thalline and others. The work reviews the literature on the subject and gives an account of the author's own experiments and observations, with illustrations of the effects produced under various conditions.

The Pocket Anatomist. Founded upon Gray. By C. Henri Leonard, A.M., M.D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynæcology, in the Detroit College of Medicine. Fourteenth revised edition, containing Dissection Hints and Visceral Anatomy. Detroit, Mich. 1891. The Illustrated Medical Journal Co., Publishers. Cloth; 297 pages, 193 illustrations; price, postpaid, $1.

This little work is intended as a companion for the dissecting-room, and is, mainly, a condensation from Gray's and of several other standard works. Having reached the fourteenth edition is evidence sufficient to show that it has been found useful. Its value as a remembrancer seems to be quite evident, considering the numerous illustrations and the terseness of the descriptions; the absence of stupid stereotype questions is also in its favor for such a purpose.

Tuberculosis.—Three editorials regarding the priority in demonstrating the toxic effect of matter accompanying the tubercle bacillus and its nidus.

The Bacteriological Laboratory of the Academy of Natural Sciences of Philadelphia has republished these editorials to place on record the claims of Dr. Saml. G. Dixon for having published in the Medical News, of October 19, 1889, experiments and results with the tubercle bacilli, analogous to those which were announced by Professor Koch in August, 1890, and in January, 1891. Since it is likely that the lines of research pursued by the two investigators may ultimately lead to important practical results, it is but proper that the early steps pointing towards this end should not be forgotten.

Vacation Time, with Hints on Summer Living. By H. S. Drayton, M.D New York: Fowler & Wells Co., Publishers. 1891. 12mo. Pp. 84. Price, 25 cts.

A seasonable little volume with practical suggestions concerning summer hygiene, applicable alike for the city and country, for the seaside and the

mountains, and for the tourist as well as for those who prefer a summer vacation without prolonged travelling.

Proceedings of the eighth annual Convention of the National Confectioner's Association of the United States. Philadelphia: Confectioners' Journal Print. Pp. 194.

The convention was held in St. Louis, May 5, 1891. The book contains the minutes with the discussions; also the official reports, circulars and communications of the year.

Pharmakopœfragen.

Pharmacopœial questions.

A reprint from the transactions of the tenth international medical Congress, held at Berlin in 1890, containing reports by A. Langgaard and Bruno Hirsch on questions connected with the elaboration of a pharmacopœia, and with the desirable uniformity in strength of preparations recognized by several or all pharmacopœias.

A Study of Coca Leaves and their alkaloids. By O. Hesse.

Reprint from the Pharmaceutical Journal, London, June 6, 13, 1891.

Sur l'Aristol. Par L. Reuter.

Ueber die Beziehungen des Filixsäuregehaltes zur Wirkung des Extr. Filicis æthereum. Von L. Reuter.

On aristol, reprint from Répertoire de Pharmacie.—On the relation of the amount of filicic acid to the activity of the oleoresin of male fern; reprint from Pharmaceutische Zeitung, April 31, 1891.

Resection of the Optic Nerve; by L. Webster Fox, M. D.

Reprint from The Medical and Surgical Reporter, May 30, 1891.

Pepsin. A review of the pepsin question, by Dr. C. F. Witte.

Reprint from Notes on New Remedies, Febr. and March, 1891.

OBITUARY.

Carl Wilhelm von Nægeli, professor of botany at the University of Munich, died May 10, aged 74 years. He was born near Zurich, and studied medicine and natural history at the universities of Zurich, Geneva and Berlin. In 1849 he became professor in Zurich, then in Freiburg, and from 1859 to 1888 he was attached to the university of Munich. His extensive labors in vegetable anatomy, physiology and morphology made his name known to scientific botanists everywhere. In systematic botany he was especially interested in the study of the algæ and of the genus Hieracium and the hybrids of its species.

Carl Johann Maximowicz died at St. Petersburg, February 16, aged 64 years. During his extensive travels in Japan, Siberia and adjoining countries he thoroughly studied their floras, and he described also the plants collected by several Russian travellers in Central Asia. Among the systematic botanists he stood in the front ranks.

Moritz Richard Schomburgk, Ph.D., director of the botanical gardens at

Adelaide, South Australia, died March 24, aged 80 years. He was a younger brother of Sir Robert Hermann Schomburgk, who died 26 years before him, and for some years had accompanied the latter in his travels and explorations.

James W. White, M.D., D.D.S., died in Philadelphia, May 27, in the sixty-fifth year of his age. He was born at Hulmeville, Bucks Co., Pa., and after the death of his father was raised in Burlington, N. J. He studied medicine at the University of Pennsylvania. At the time of his death he was the senior member of the firm of Hance Brothers & White, and the president of the S. S. White Dental Manufacturing Company. He was connected with the Dental Cosmos, as contributor and editor, since its establishment in 1859. He was interested in a number of philanthropic undertakings, and in 1887 was appointed president of the Board of Charities and Correction, an unsalaried position of honor, which he held for two years, when he was removed for refusing to acquiesce in what he conceived to be a violation of the letter and spirit of the civil service laws of the city.

Notice of the death of the following graduates of the Philadelphia College of Pharmacy has been received:

Edwin R. Burdick, class 1880, died in Philadelphia, where he was in business, June 18, aged 34 years.

J. Crawford Dawes, class 1841, died here June 26. For a number of years he had left the drug business and was engaged in other enterprises.

Edward Gaillard, class 1854, died here March 30, aged 53 years. For about 25 years he was in business at Eleventh Street and Montgomery Avenue. He contributed several papers to former volumes of this Journal.

Edward Warrington, class 1880, died June 6; he was in business on Richmond Street, in this city.

George F. Wiggan, class 1848, died June 4, aged 63 years. He was formerly chemist for Chas. Ellis & Sons, but more recently had been an extensive coal operator.

VARIETIES.

Pepsin.—The Pharmaceutische Centralhalle, June 4th, 1891, describes the production of pepsin by the patented method of J. L. Webber, which consists in macerating animal stomachs with acidulated water, clarifying the solution obtained by the addition of sulphurous acid, removing the clear liquid from the precipitate and then separating the pepsin from the peptone, by saturating at a higher temperature with sodium sulphate, whereupon pepsin is deposited whilst the peptone remains dissolved. The precipitate is dissolved in weak hydrochloric acid; the sodium sulphate is removed from the solution by dialysis, the residual liquid concentrated and dried. From the liquid, out of which the pepsin is deposited, the sodium sulphate is separated from the peptone by recrystallization on cooling. The product is readily soluble and, being free from peptone, is non-hygroscopic and permanent. It is claimed that one grain of it is capable of dissolving ten thousand grains of egg-albumen according to the test of the National Formulary.

Sulphonal is regarded as one of the most reliable and safest hypnotics; but that there is a certain amount of danger, was shown by Dr. Bresslauer, of Vienna (*Lancet*, April 4, 1891). The patients were lunatics, and had been taking the drug for a considerable time in good doses, and borne it well until symptoms of disturbance set in, these being great constipation, dark-brown urine, slow, or in some cases rapid but feeble pulse, discolored patches resembling purpura on the limbs, and great prostration. In several cases which ended fatally, the cause of death was heart-failure, with œdema of the lungs.

Retinol, a product of distillation from resin, seems likely to prove of service in the treatment of skin diseases. It dissolves many antiseptics: Salol, 1·10; iodol, 1·50; naphthol, 1·50; aristol, 1·50; camphor, 1·20; chrysophanic acid, 1·40; cocaine, 1·30; codeine, 1·40. It mixes with fats, oils, petrolatum, lard, lanolin or glycerin. Combinations of convenient density are: Retinol, ten parts; white wax, four parts; cacao butter, six parts. Retinol, eight parts; resin, eight parts; lanolin, five parts; or of each five parts.—F. J. Vigner, *British Journal of Dermatology*, May, 1891.

Cactine, the active principle of *Cereus grandiflorus*, has been isolated by F. W. Sultan, and its physiological action examined by O. M. Myers (*N. Y. Med. Jour.*, June 13, 1891), who states that, locally, it is absolutely non-irritant and that in therapeutic doses it is a powerful cardiac tonic stimulant, useful in functional cardiac and circulatory disturbances and in organic heart disease, except mitral stenosis, for which digitalis is preferable.

Nutrient enemata.—HUBER (*Corres. Bl. für Schweizer Aerzte*), recommends that 1 gm. of chloride of sodium should be added to each egg which is given as a nutrient enema. In this way, he thinks, about 12 per cent. is absorbed. An enema should contain two to three eggs and should be given two or three times daily. An hour before it is given the bowels should be washed out with warm water.

Phenylurethane (euphorin) is strongly recommended by Adler (*Wien. Med. Wochenschr.*, No. 17) for its analgesic and antirheumatic action; hardly any. unpleasant after-effects were noticed, increased diaphoresis and a feeling of warmth being observed in one case. (See also Amer. Jour. Phar., 1890, pp. 389, 584).

Iodoform in Tuberculosis.—Flick regards its curative powers as being limited to those cases in which the circulation has not yet been cut off from the deposit. It is dissolved in cod liver or olive oil, and is given by injunction; the preparation should last for several weeks.—*University Med. Mag.*, August 1891, p. 727.

Aristol, used by freely dusting the powder on the affected parts, has produced almost magical relief in a case of rhus poisoning which had reached the vesicular stage and was attended with much swelling and burning.—Dr. J. J. Levick.—*Med.* News, July 25, 1891.

The cholagogue property of salicylate of sodium was made known by Rutherford, but has not received much attention. Professor Germain Sée now reports (*London Lancet*) that he has found it to be the most efficient of all cholagogues in promoting the expulsion of gall-stones.